Check Pilot Report: BEECH TRAVEL AIR

FLYING

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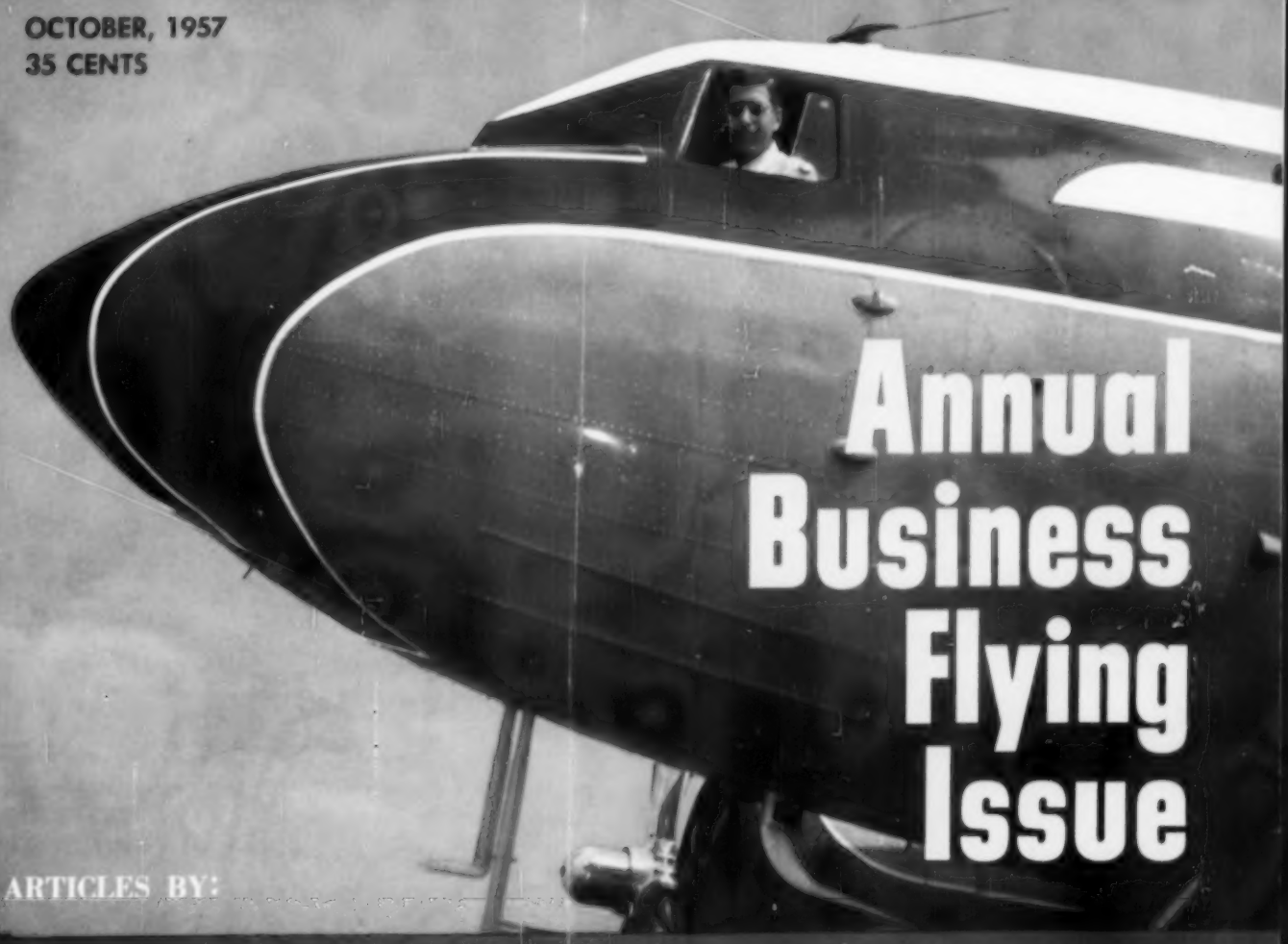
OCTOBER, 1957
35 CENTS



Annual Business Flying Issue

ARTICLES BY:

GENERAL LUCIUS D. CLAY, Chairman of the Board, Continental Can Co.

★ **PALMER HOYT,** Editor and Publisher, The Denver Post ★ **T. S. PETERSEN,** President, Standard Oil Co. of California ★ **LEON A. SWIRBUL,** President, Grumman Aircraft Engineering Corp. ★ **HALL L. HIBBARD,** Senior Vice President, Lockheed Aircraft Corp. ★ **DWANE L. WALLACE,** President, Cessna Aircraft Co.

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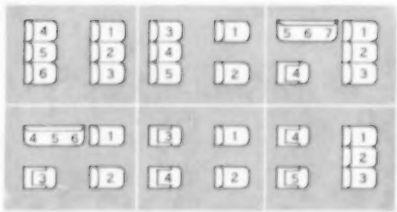

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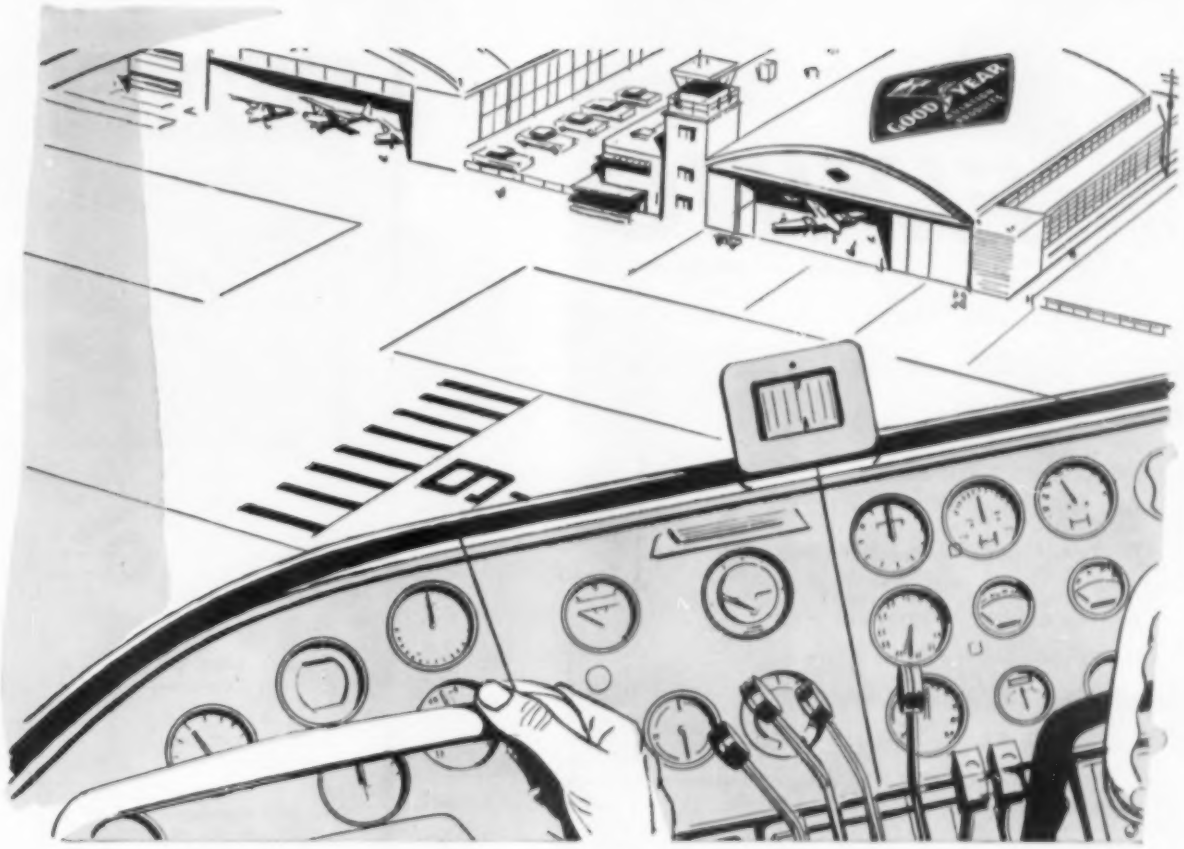

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OCTOBER, 1957 VOLUME 61, NUMBER 4

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THE COVER: Top winner at Reading Aviation's 8th annual business awards meeting, National Dairy Products' DC-3 was named "Flagship of the Business Fleet" for 1957. W. R. (Rip) Strong, captain, smiles from the cockpit. Photo by Emil A. Lehecka.

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A. M. COURTNEY
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Advertising Manager, Midwest

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This is Collins new 17L-8 VHF transmitter. A big performer in a small package. It's a 3 watt transmitter in a 3" diameter case 8-11/16" long which mounts on the instrument panel. Weight is only 5 pounds, including separate modulator power supply which can be mounted anywhere without shockmounts. There are 90 crystal-controlled channels (118.0 to 126.9 mc) with 100 kc spacing. Transistorized modulator for 90% modulation with carbon mike. The 17L-8 is a truly outstanding VHF transmitter of airline quality, light enough, compact enough for even the smaller aircraft. A companion receiver will be available soon.

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MAILBOX

FOR THE RECORD

I shall be grateful if you will publish in the mailbox section of FLYING Magazine the following statement.

The July, 1957 issue of FLYING carries an article by Douglas Larsen on the adventures of Jerry Fred DeLarm in Central America. Mr. Larsen relates at length the interesting story of DeLarm's part in combatting the Communists in Guatemala in 1954 and, in this context, quotes DeLarm as having fought the "pinkos" in Costa Rica in 1948.

DeLarm has forgotten his history. In 1948 he fought in Costa Rica on the same side as the Communists. He was fighting against the forces of democracy. I realize he would prefer to forget this, but the facts cannot be changed to suit his convenience. . . .

During the first part of his term as President of Costa Rica from 1940 to 1944, Calderon-Guardia formed an alliance with the Communist Party led by Manuel Mora. In 1944, this coalition pushed Teodoro Picado into the Presidency amid loud charges of fraud. Popular reaction was strong, and finally in the 1948 elections the democratic opposition parties successfully campaigned for the election of their candidate, the losing candidate being Calderon-Guardia who was up for a new term. However, a rubber-stamp Congress annulled the elections and it seemed as though the Calderon-Guardia/Picado/Communist group would continue in power.

At this point, Jose Figueres organized an army of young men and led the revolution that threw out the Communist-supported government. In 1949, after an interim period as head of a provisional government, Figueres turned the Presidency over to the successful 1948 candidate of the democratic opposition parties.

If, by his own admission, DeLarm fought in Costa Rica in 1948 on the side of Calderon-Guardia, he then fought on the same side as the Communists, because Calderon-Guardia was allied with them. Unfortunately for DeLarm he was then on the wrong side and no words of his at this time nor any actions of his after 1948 can erase this fact.

Jose Figueres, today President of Costa Rica and, in 1948, the man who lead the revolution against Calderon-Guardia, has been called a "pinko" by Jerry DeLarm in order to get himself off the hook.

The cause of freedom and democracy in Latin America and the reputation of its defenders is much too important to be sacrificed to save face even for Jerry DeLarm.

Any of your readers who would like to read a scholarly and complete analysis of the problems of democracy in the nations to the south, I recommend they read "Communism in Latin America" by Professor Robert J. Alexander of Rutgers University. In this book they will learn of the high regard that people working for democracy in Latin America have for President Figueres.

GONZALO J. FACIO
Ambassador of Costa Rica
Washington 8, D. C.

• *In the interest of the record,* FLYING *is happy to hear from His Excellency, the Ambassador of our sister nation, Costa Rica.*—ED.

MISS "POWDER PUFF" 1976

After being an avid reader of FLYING Magazine for ten or more years, I decided to send this picture of my two and a half year old daughter, Sheree, priming herself to participate in the 1976 "Woman's

Air Races." She loves to fly and I am sure will be a true "Air Man."

Once more eulogy for "I Learned About Flying From That." These articles have gotten me out of trouble more than once. Keep up the good work.

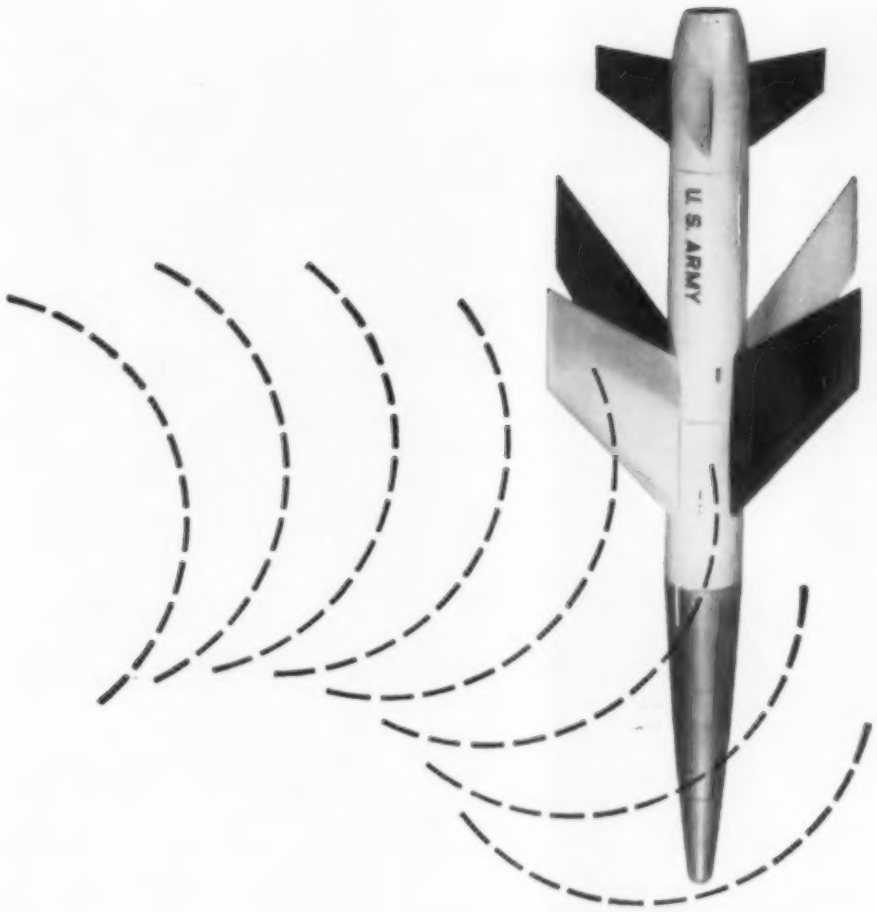
BILL GRIFFITH
Elmwood Park, Ill.

IF THE SHOE FITS

I guess we and many more have that fighting spirit or we would have closed up long ago. We do keep the grass mowed and have that sign out front $6 per lesson and our plane looks like a flying billboard. We got those signs painted in exchange for flying time. We lend our car to people who fly in. Most people are good about putting in gas, but once in a while someone will burn up the gas in it, keep it all day, and hand you two bucks.

But I can't help wondering how much business Mr. Eddy (Mailbox, June, FLY-

(Continued on page 8)



NEW WEAPON, NEW CONCEPT

An important new weapon for a new U. S. Army concept is now being delivered in quantity by Martin-Orlando. This is LACROSSE, a field artillery guided missile, developed to implement the combat concept of the Pentomic Army... a "fighting" Army consisting of self-sufficient highly mobile battle groups. LACROSSE will provide these battle groups with the shockpower of extraordinary speed, mobility and accuracy in heavy armament support of their operations. LACROSSE is the first generation of an entirely new kind of general purpose weapon. All of its components, consisting of the missile mounted on a standard Army truck and a guidance system, can be airlifted to advance areas. The missile is fired in the general direction of the target – without target data at the launching site. Its pinpoint accuracy is controlled by a forward observer. The Martin Company, with more than 10 years of design, production and operational experience in guided missiles, today stands as a leader in this important field.

MARTIN

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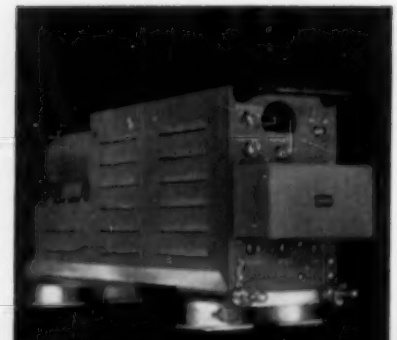

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MAILBOX

(Continued from page 6)

ING) did with these little airports, or was he just there taking up the manager's time. Most people think we have nothing better to do than just pass the time of day.

Most people too stop in to get free advice which they don't intend to take anyway, or want a $200 paint job for $100; or possibly buy a good cheap airplane for $500.

We can't get more than two or three local people interested in flying at one time here, so we subdivided our wooded area and sold lots 120 x 200 feet, hoping this would stir up some outside interest and business. We sold 36 lots mostly on contract and these people haven't built cabins or hardly been up to see their lots. But we mow the taxi strips to the lots and keep the runways mowed (two runways 2,600 feet) and a 24-hour vigil, seven days a week.

We cleared $300 on flying last year and $400 on repairs that we didn't put in stock or more equipment, the rest of our living came from odd jobs. And if we hadn't raised our own garden we would have had it even rougher.

We keep our plane in good repair as this is our best insurance. We can't afford the other kind. Maybe Mr. Eddy would be interested in fixing up an airport like he thinks it should be. We'll give him first chance, good deer hunting and a good lake two miles away. More information on request.

MR. AND MRS. GEORGE HAVEMAN
Home Acres Sky Ranch
Lake City, Mich.

P. S. That $100 won't even buy gas to mow the runways and plow them out in the winter. We enjoy FLYING very much; there is a race to see who reads it first, Ma, Pa or No. 1 son, aged 15.

CHECK PILOT REPORT

I am surprised at your comment in connection with Walter J. Simon's letter from Birmingham, Mich. in Mailbox August FLYING.

Perhaps Cessna received no complaints owing to the possible complainant not being around to say what happened.

I have owned two Cessna 170-B airplanes, am currently flying one and have flown most models except the 310.

Now, confidentially, as one pilot to another, haven't you heard of the rule "don't trust gas gauges; always check tanks with your finger or a clean measuring stick?"

I fly the deserts and Sierra Madre Mountains of Mexico plus the southwest of the U.S. . . . if I should see a pilot checking for water by remote control only, I wouldn't ride with him and I can safely say, neither would my pilot friends regardless of his so-called ability. I just want to be an "old" pilot.

In the interest of good habits in flying I think you should at least correct the aforementioned hurried comment even if you don't publish this letter.

J. T. WELLS
Naco, Arizona

• *In no way was* FLYING *suggesting that the old rule of thumb was extinct, or unnecessary. Mr. Simon's letter was printed for just this reason. On the other hand, we felt in all fairness that the manufacturer had an equal right to comment.* ED.

NEAR MISSES

We all read a lot in "flying literature" about near misses and collision courses and causes. An experience came my way a few weeks ago which might help someone avoid such incidents.

My Tri-Pacer gets part of its use from flying me to my farm landing strip. On these trips I always take the same route as I pass two airports within a mile. This route is on the right hand side of a railroad track, then on the right hand side of a line fence or section line and then on the right hand side of a highway to my country strip. The fact that other fellows follow the right hand rule in flying as they do in driving prevented a collision or at least a near-miss for me a short time ago.

The part of my trip on the right hand side of the railroad was being made one hazy morning with about 3 miles visibility and 1,000 ft. ceiling. Keeping a close watch as I always do (I had just looked at the panel) I was still a bit shocked to see coming toward me, at my altitude, a Bonanza about a half mile away. *But* he was on his right hand side of the road.

It is quite natural to do this for that is the way we drive our cars, but let's fly that way also, then when we are not looking or are in haze and poor visibility, we will have less to worry about for we will know that any one we meet will be on their side of the road.

RALPH H. MOORE
Oak Park, Ill.

P.S. I am 59 and began flying in 1951. My wife and I feel safer in the air than on the highway. I have close to 500 hours now.

POSTMAN'S HOLIDAY

While in the flying end of aviation pushing throttles on Connies and such, I have always wanted to take a "Postman's Holiday" vacation by light plane.

After reading the story "Nassau Jaunt" in the April '56 FLYING by William Strohmeier, my family crew and I decided to rent a Tri-Pacer and try the Nassau Holiday.

My crew—wife Muriel, daughter Virginia—loads of baggage and survival gear and all 220 lbs. of myself departed Teterboro, N. J. and visited St. Simons Island, Ga. for a few days. The King and Prince

(Continued on page 90)

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Briefings . . .

NATIVE NEW YORKERS and visitors to the city who passed through Grand Central Terminal during July last gazed in wonder at the Army's "Sunday Punch," the giant Redstone missile, on view as a salute to the International Geophysical Year. Towering almost to the ceiling of the huge terminal, the 62-foot-long rocket is the longest object ever to be shown here. Assembly in the station was a 14-hour job.

LEARCAL DIVISION of Lear Inc., Santa Monica, Calif. has prepared an 80-page booklet called "ADF Stations." Priced at $1 and available through Lear distributors, the booklet lists, with pertinent data, more than 3,000 radio stations suitable for automatic direction finding in the U.S., Canada and Mexico.

FIVE AIRCRAFT SUPPLY COMPANIES, representing 125 years of service to the aviation industry, were honored by the Aviation Distributors and Manufacturers Association during recent convention at Colorado Springs. ADMA director, C. A. Degucz (standing right) of Electric Auto-Lite, presented service plaques to the

company executives and branch representatives of Air Associates, Air Parts International, Standard Products, Inc., Van Dusen Aircraft Supplies and Central Aero. ADMA's 1957 president, J. Turner Moore, Jr., Auto-Lite V.P. is at far left.

IN AN EFFORT TO IMPROVE maintenance practices and remove some of the causes of customer complaints, the National Aviation Maintenance Council, a division of NATA, has developed and published in a folder, a set of recommended practices. Entitled "Desirable Practices for Aviation Maintenance Facilities Toward Improved Customer Relations" it is planned that this will be followed by a set of "Ten Commandments" directed to the aircraft owner, enumerating items that should be observed when obtaining maintenance work. NATA's address is 1346 Connecticut Ave., Washington, D.C.

IN KIT FORM a new line of Radome and Microwave units for all-weather radar installation on business and commercial aircraft is available from McMillan Industrial Corp., Ipswich, Mass. Manufactured in accordance with CAA and military specifications, complete kits are now available for the DC-3, B-23, Viscount, Aero Commander and Super Ventura. Soon to be ready are kits for the C-46, Cessna 310 and all twin-Beechcraft.

IN COMMEMORATION of a quarter-century in the field of aircraft construction, friends and associates of Beech Aircraft's official family are the recipients of a striking bronze medallion, a photo reproduction of which is shown here, picturing Walter H. and Olive Ann Beech co-founders of the company. Formed in 1932 Beech Aircraft today reaches into more than 50 countries of the world.

DEVELOPMENT OF A NEW aircraft cockpit control, a Dual Fire Emergency Safety Switch (Model E-857), has been announced by Avionics Products Engineering Corp. of Dover, N. J. A fire emergency control and fire indicator device for twin engine aircraft, the new device contains an interconnect feature which restricts the operation of a second control after the first is pulled.

SCOTT AVIATION has developed a completely self-contained oxygen system which requires no installation. Size 22¾ in. long, 5¼ in. in diameter, the unit weighs only 12 pounds. It may be placed anywhere in the aircraft or mounted with clamps for a fixed installation. It serves one or two persons to 20,000 ft. Duration at 20,000 feet for one person is five hours; two persons two and one-half hours. The price of $115.25 includes 22 cu. ft. cylinder, handy flush-strap carrying handle, miniature regulator, gage and two AN Mark outlets. Masks are not included.

AT A COST of more than $200,000 Metropolitan Oakland (Calif.) International Airport is constructing 24 executive and lightplane hangars to meet the needs of private aircraft. Four of the hangars will accommodate twin-engine aircraft.

IN DETROIT Helicopter Airways Service, Inc. a new corporation, has started passenger and charter service with a Bell 4-place 47-J. Flights from downtown Detroit to Willow Run Airport are now in effect with service to be extended to cities within a 100-mile radius. Principals are

Warren A. Avis, Board Chairman of Avis car rental system; Ford Motor's Board Chairman, William Breech and Wm. J. Scripp, president of Detroit News. General manager and pilot is Ronald Littlefair, former AF pilot. Temporarily defeated by fog on a charter flight covering start of Mackinac yacht races at Pt. Huron, in July, Pilot Littlefair put his chopper down on the shores of Lake Huron much to the delight of the young fry.

REFLECTING THE EXCELLENT safety record of international airlines, Tele-Trip Policy Co., Inc., has adopted a two-zone system, domestic and foreign, for airline trip insurance. Rates on foreign flights are reduced to $1. per $12,500.

SECOND LIEUT. THOMAS W. BEAGHEN, first AF student pilot officer to receive training in the T-37-A twin-jet Cessna trainer, at Bainbridge AFB, Ga., is welcomed by Lt. Col. E. L. Masters, Base Commander, as he finishes his initial flight. Twelve of the trainers and 20 stu-

dent officers are in a test project to determine feasibility of the AF turning to all-jet primary training. Also present were Major Angelo Boutselis, project officer and Hugh W. Davis, general manager, Southern Airways Co., civilian contract school at Bainbridge. In the cockpit is civilian instructor, Alfred Sluyter.

A STEP CLOSER toward creation of single North American joint defense command came to light recently with the

(Continued on page 114)

FLY WEATHER-WISE — Mobil

These weather items prepared in consultation with the United States Weather Bureau

WEATHER AND RADIO

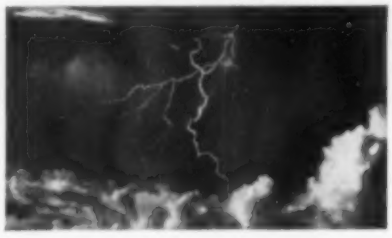
HOW WEATHER CONDITIONS AFFECT THE PROPAGATION OF RADIO WAVES

RADIO RECEPTION may vary from poor to exceptional, depending on the temperature stratification. Temperature inversions alter refraction characteristics of the atmosphere. This can result in freak reception over great distances on VHF channels.

Precipitation static—ice crystals, snow flakes and rain droplets striking aircraft can cause crackling in headphones.

Static due to lightning discharges. These occasional bursts and crashes can be picked up at considerable distance. It is often your first indication of thunderstorm activity.

How to minimize static: Change altitude if it can be done safely. Decrease speed in rain or snow storms. Where possible, avoid dry snow and cirrus clouds composed of ice crystals. Keep radio volume turned low to reduce background noise. It is preferable to use a higher frequency broadcast station for ADF homing instead of low frequency range station. During periods of static, push headphones over temples when not listening—to keep fatigue to minimum.



Aurora Borealis, associated with magnetic storms. These extra-terrestrial phenomena cause communication fadeouts. Tune in to Time Signal Broadcasts of National Bureau of Standards (5 or 10,000 kilocycles for forecasts of periods of poor reception).

NEW MOBILGREASE AERO LO-TEMP

For improved performance, added protection and reduced maintenance of grease lubricated parts—*including instruments, where protection from corrosion and minimum frictional drag are particularly important*—specify Mobilgrease Aero Lo-Temp.

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SOME OF THE ADVANCED FEATURES WHICH MAKE THE NEW

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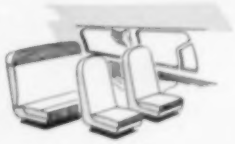
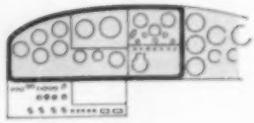


NEW
more usable cabin space
with scores of extras!

NEW
heavier windshield
and windows



NEW
functional
panel grouping

Now...a whole year ahead...the fast Cessna 310B for

Here's twin-engine flying's greatest comfort achievement—a completely new and roomier kind of cabin. It's sound-sealed and fully insulated... soft and spacious, to wrap you in restfulness, the whole quiet 213-* mile-an-hour ride!

* See specifications

It's the most advanced twin in the sky, this fast and beautiful new Cessna 310B.

Far more than just a "warmed over" model, it's truly next year's airplane here today, with all the advanced performance and safety features that have made the 310 famous—unequalled power per pound of weight, wing-tip safety tanks, superb "engine-out" dependability. And now, you get all this plus a completely new kind of cabin comfort!

There's new quiet in the Cessna 310B, because its Comfort-Sealed cabin is completely insulated from floor to ceiling and all around; its windows and windshield double-heavy and vibration-free.

There's constant climate control with its brand-new heating and ventilating system that surrounds you with a soft flow of fresh, cooling air in summer—and in winter, blankets you in warmth from its "double-capacity" heater.

And there's real deep-cushioned comfort in its new and wider cabin—with extra room where you want it most! You can choose the fully adjustable all-in-one rear seat that tilts back for lounging at a touch, or optional

CESSNA 310B THE WORLD'S BEST ALL-AROUND LIGHT TWIN:

NEW
fully adjustable seats*
*separate reclining rear seats optional

NEW
giant 19-cu. ft.
baggage compartment

NEW
"double-capacity"
cooling & heating

NEW
fully retractable
double step

1958!—with the revolutionary "Comfort-Sealed" Cabin

separately reclining rear seats (comfort experts say they're the most perfect airplane seats yet). You also get such new and luxurious extras as rear-seat armrests, full-width magazine racks, and sparkling new fabric and color combinations. Front seats, too, are fully adjustable, softer and more relaxing than ever.

But all this is only the beginning! You'll see a new, more functional kind of instrument panel, grouped for easier I. F. R. flight, with new nonglare "post" lighting. A new, bigger baggage compartment. A new retractable double step to make getting in and out really easy.

New, easy-opening cowling fasteners for quicker engine maintenance.

One look, one flight at your Cessna dealer's will prove it! This is the most advanced twin available today. He'll show you scores more new features, from an improved oxygen system to new and luxurious carpeting, a bigger luggage shelf, a better taxi light—even new giant-size ash trays!

The Cessna 310B is priced (with std. equip.) at $59,950 f.a.f. Wichita. See your Cessna dealer or write CESSNA AIRCRAFT CO., DEPT. F-12, Wichita, Kan.

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THE COMPLETE AIR FLEET
FOR EVERY BUSINESS NEED

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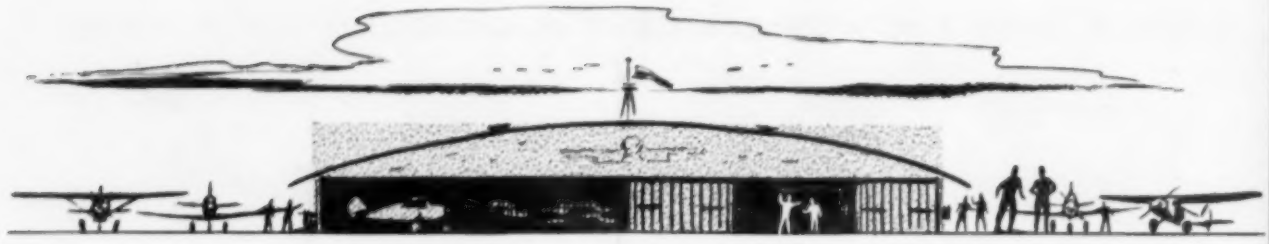

HANGAR FLYING

WEATHER-WISE

IT WAS JULY 1950. The family had just completed an automobile trip and arrived home exhausted and irritated with the memory of three "close shaves."

"Why not look into this private flying business," asked my wife. "I don't see how anything could be worse than the way we did it today."

That was all it took. I set out to learn everything I could about private flying, and particularly about the cause of accidents. I had always believed flying was only for the reckless few. As a result of this study I became convinced that it need not be dangerous. Recent figures on business flying show a mortality rate of only 0.5 per hundred million passenger miles as compared to 8 per cent for the automobile. Nor do these figures consider the millions who are injured in car accidents each year. Engine or structural failure is a rarity as a cause of air-accidents. Yet accidents continue to occur almost without exception from weather. By "weather" I mean conditions which are borderline enough to lead the pilot to say: "I think I can make it." That this is our most serious problem has long been recognized by all mature thinkers. Perhaps I can best illustrate the folly of "pushing weather" by relating an unhappy experience. My wife and I had scheduled a week-end trip to northern Minnesota. Because of my hospital service this was the only week end I could arrange to get away. To aid to the urgency was another reason, pride. We had been grounded by what I call "little weather" and by my own inexperience—and perhaps excessive caution. Here was a made-to-order chance to show my now-sceptical wife that the private plane was truly a useful device. However, as the week end approached, the forecasts grew ominous, and on Saturday morning a large thunderstorm was passing north of town. An anxious interview with the weatherman was not encouraging. He expected thunderstorms throughout northern Minnesota during the afternoon and evening; but there was no frontal weather and the storms would be scattered. Although I had not yet acquired an instrument rating, I had enough Link and hood time to fly quite well on instruments. Such a forecast would have stopped me completely a year ago but I now felt certain that I could avoid trouble. Making the same trip from an airport 50 miles south of Rochester, Minn. was a young business pilot with 600 hours and a brand new instrument rating. He had been inclined to "push the weather" but, aside from a forced landing due to icing, he had no significant difficulties. His course, almost the same as mine, was well off the airways. When about 100 miles out, he could see a large and very dark thunderstorm dead ahead and extending in an east-west direction. To avoid a lengthy detour, he apparently decided to fly under it. After getting under the clouds he encountered low ceilings, areas of torrential rain, hail, loss of visibility and extreme turbulence. After some minutes in instrument conditions, he evidently gave up all attempt to fly instruments. He spotted a road and decided to attempt a landing. As he went into a turn to line up with the road, his wing struck a fir tree and the plane cartwheeled.

Dr. Charles H. Scheifley

My trip was entirely uneventful, I did not fly through the storm, nor did I get under it. I flew around it.

CHARLES H. SCHEIFLEY, M.D.
Rochester, Minn.

MAP TROUBLE

IT WAS A cloudless but rather hazy morning. We left our two small boys with their grandmother, and my husband drove me to the airport for my first solo cross-country. At seven a.m. Jack propped our Piper J-5 and I was off.

I made a wide climbing circle, broke out of the traffic pattern and picked up my heading. I was going from Deland, to Lakeland, Fla., about 90 miles south.

Looking at the folded chart on my lap and noticing that it was upside down, I thought to myself: "My, I must be nervous. Who can read an upside down map?" So I fixed it "right." The check points came up regularly. I remembered to reverse them. It was simple. After leaving Apopka there were swamps below me with no check points, but soon there would be a city on my right with a water tower. It was on the right on my chart. And sure enough, the tower came into view, off to the right. Now dead ahead was Lakeland. The first thing that I saw to use for a check point was a bunch of lakes. There were too many of them, according to my calculations and no airport.

I was lost. "Impossible. Hadn't the tower been on my right?" As I passed over small towns I looked for names. There were none. Just then I spotted an airport, small, but planes were landing on it. I got into the traffic pattern before discovering to my dismay that these were Army planes, and lots of them. I found out later that it was Bartow, on the next sectional map. My thoughts rapidly alternated between "They'll die laughing when a lost female comes in" to "I'll be shot for trespassing on government property." The latter won and I scrammed. By now I was so turned around that it was impossible to read the chart. Fortunately, I did not lose faith in my compass and knew that my position was approximately in the middle of the state and that I had gas for at least three hours. I could fly west to the Gulf of Mexico and look for Tampa. I had gone west for only a few minutes when I saw a mine with a railroad spur ending at the mine building, and found it on the chart. I even found that if I lined up my nose with the spur I would run right into Lakeland. When I got to the airport, I was still so shaken that I could not remember the proper procedure for getting into the traffic pattern. It took two circles of the field, and just as I started my downwind leg, I noticed that the runway ran into the lake. The other runway looked much longer but my crosswind landings left much to

(Continued on page 109)

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by far have been built
and sold than any other
executive twin in the world...

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LOCK HAVEN, PENNSYLVANIA

R.W.F. (Big Bob) Schmidt, Manager, Tucson Airport Authority

There's a team in Tucson worth knowing about!

Big Bob Schmidt and Shell, working together at Tucson, Arizona, Airport have increased aviation fuel sales fivefold since 1948!

Seems everything's big at the Tucson Airport—Big Bob, big sales . . . and big plans that are underway to extend the 12,000-foot runway to 15,000 feet, making it the longest in the world!

"One of the things that attracted us to Shell," says Bob, "was the company's reputation for helping dealers grow. We knew there must be good reasons for it. We soon found out. Giving engineering and other specialized assistance to help dealers build for the future is one secret of Shell's position as an aviation supplier.

"For example, when we needed more bulk space, Shell engineers designed and supervised the construction of storage facilities.

What's more, Shell's technical representative is always here when we need him, making our job of keeping our customers satisfied a lot easier."

And at Tucson, customers *are* satisfied. Pilots know that a Tucson stopover means a lot more than sunny weather. Big Bob gets them in and out again—fast! He delivers the kind of service they need for on-schedule take-offs every time.

Responsibilities fall on Bob Schmidt when he's *away* from the airport too. Bob is president of the National Foundation for Asthmatic Children, president of the American Association of Airport Executives, a director of the Tucson Metropolitan YMCA, and chairman of the Y's Southside Branch.

Shell is constantly on the watch for men who can build careers to match that of Bob Schmidt.

Corporate plane taxies past control tower on way to spacious parking ramps. New operations' building and ten-story tower are under construction.

Big Bob and Shell representative "Nebby" Nebeker stand near bulk storage tanks discussing plans for still further expansion of airport facilities.

Speedy turnabout service is provided for huge airliners landing at Tucson. Efficiency results in on-time take-offs.

It pays to be a Shell Aviation Dealer

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Rugged—Comfortable—Beautiful!
Guaranteed superior to original, up to six pounds *lighter*, these heavy-duty leatherette fabric covered SEAT CUSHIONS are *complete* replacement sets for *all* seats including back-rests and bottoms.

Aeronca 7AC—Champ	$22.50
Aeronca Chief (State Yr. of mfg.)	23.25
Cessna 120-140	32.50
Ercoupe	33.25
Luscombe 8A—8E	33.75
Piper J-3, PA-11, PA-18	21.50
Piper J-5, PA-12	34.50
Taylorcraft—side by side	23.25

Others on request
Specify colors: Black, Brown, Green, Gray, Red and Blue. (Cream trim $5.00 extra.)

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Complete with all necessary zippers, stiffeners and attaching means, etc. Ready to install! All popular colors.

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Cessna 140	21.30
Piper J-5, PA-12	14.95
Stinson 150-165	20.25
Taylorcraft, side by side	17.25

Others on request.

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Exquisite colors, deep pile. The finest woven rubber backed carpets, tailored to fit. Snaps included.

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Ercoupe	9.00
Luscombe 8A, 8E	7.75
Piper J-3, PA-11, PA-18, J-5, PA-12	14.50
Piper Clipper, Pacer, Tri-Pacer	15.50
Stinson 10A, 105	15.25
Stinson 108 Series	15.75
Taylorcraft, side by side	8.75

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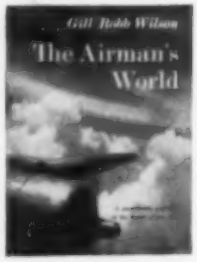
HAVE YOU READ?

By JAMES F. SUNDERMAN

THE AIRMAN'S WORLD, by Gill Robb Wilson (Random House, $2.95).

By and large the airman is an inarticulate creature of technology dealing with a world of expanding scientific fact. To his tasks he pays a lifetime of concentration as dedicated as the prayerful monk counting his beads at vespers. Rarely until now has there been any articulation of his long, long thoughts—any philosophical perception of the life he lives, the rewards he has, the lore he accrues.



The Airman's World is this articulation. The author uniquely combines photo, prose and poetry to interpret the sky and the men of the sky. This book is the voice of a vast clan of inarticulate flyers. It will be treasured by them beyond value not only because it contributes a new element of culture to the air age but because it is authentic of so much and so many.

The Airman's World had its origin as a monthly feature in FLYING covering a wide variety of aerial panorama routine to the airman—the rain lashed prairie, the threading rivers, the mountain peaks, the fury of the storm front. Thousands of letters from airmen of all walks requested reprints of what expressed so clearly their own thoughts and experience. It became impossible to fulfill each request.

But there was one that could not be turned down. It was from a life-long friend and fellow flyer and said: "Let me compliment you on the fine series of word pictures of the world of the airmen—this type of presentation discloses flight in a way that seldom finds expression. I would like to see you expand 'The Airman's World' and put it in book form. A volume of your interpretations of flight would make a unique contribution to aeronautical writing and would give to the layman the knowledge and understanding gained over your long career in aviation."

It was signed "Nate." And below, neatly typed "Chief of Staff, USAF."

Such was the genesis of a volume that will become a landmark in the literature of the air—32 word-and-picture portraits reflecting the lore of the airman and revealing to those yet to venture aloft a realm of majestic beauty and abiding thought.

We repeat, it is the articulate voice of so many and of so much that its role in the interpretation of men and the sky must rate it as a classic.

SAFETY AFTER SOLO—HOW TO FLY 10,000 HOURS, by John R. Hoyt (Pan American Navigation Service, $4.75).

Repeating the old saw "there are no old, bold pilots—just old ones," Hoyt, former U. S. Naval Reserve Commander authors an expanded edition of his 1944 volume.

This is mainly a flight safety book dealing with basic principles of pilotage. Hoyt organizes his material into four parts: Part I, called "Flying For Fun" lays out the right mental attitude required to make a "million miler" out of a student pilot. Discussion includes hazardous weather, compass navigation, forced landing procedure and cross-country flight.

Part II deals with the danger periods in a flyer's life. These are three (1) immediately after solo—the flyer lacks technical dexterity (2) from 500 to 1,000 hours—he has acquired dexterity and relaxes caution, and (3) over 2,500 hours when caution is thrown to the wind. Logically this section deals with sharpening the senses. A chapter on airplane engine inspection rounds this one out.

Part III concerns with practice towards a CAA license and the examination itself.

Part IV, the largest section—aimed at every pilot—comprises useful tips and guidelines for growing old. It treats night vision and night flying; the effects of flight attitude on the mind and body and the conditions of "vertigo" and "hypoxia;" advice for a new instructor; and fear—how it can be converted to advantage.

Safety After Solo is both a "how-to-do-it" and a "what-to-do-about-it" flight guide. Beginning aviators will benefit by it, while older pilots will find this investment well worthwhile.

MODERN AIRMANSHIP, edited by Neil D. van Sickle, Colonel USAF (D. Van Nostrand, $9.75).

Drawing upon the combined talents of 19 distinguished military and civilian authorities in air science, aeronautical engineering and flight, Colonel Van Sickle has compiled and edited a basic airman's test book and reference that stands head and shoulders above anything of its kind.

It comes at a time when lightplane training is on the upgrade and private flying is gaining in stride. This

(Continued on page 22)

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FOR
AIRCRAFT

FINISHING

Above, experienced airplane painters are applying the finishing touches to an Aero Commander. This brown-and-white design is a Downtown Airpark original. The pictures to the right demonstrate some of the steps taken in reaching this finished product.

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THE LOCKHEED UTILITY JET TRANSPORT

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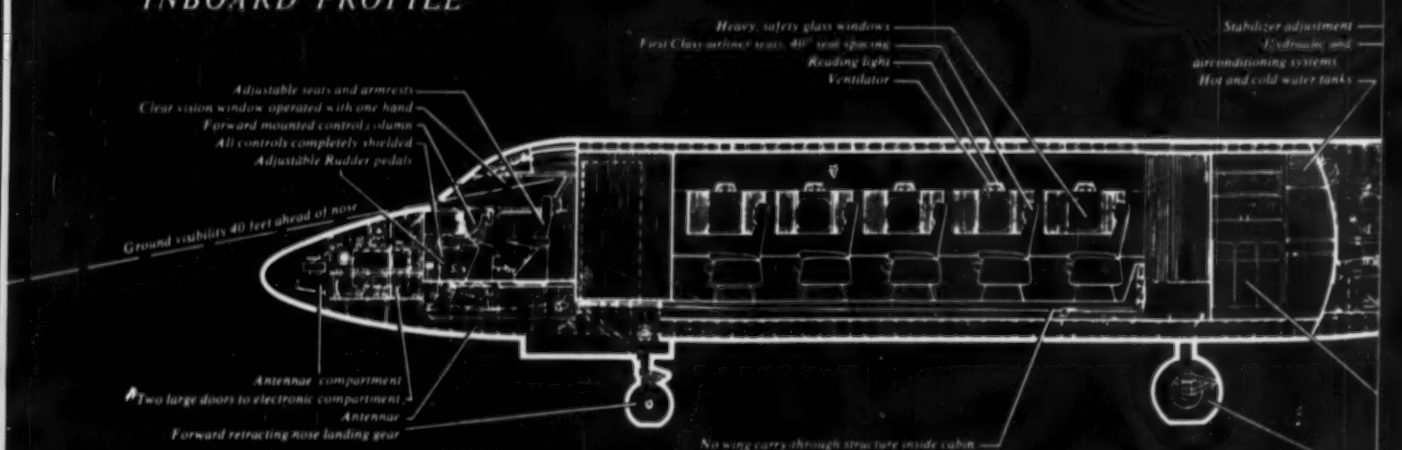
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a 10-passenger utility jet transport with 4 engines, designed to perform a variety of Jet Age military missions at low cost.

Able to match the performance of large jet transports, but at a fraction of their costs, the new swept-wing Lockheed JETSTAR will cruise 500/550 mph at altitudes from 25,000 to 45,000 feet—for ranges of 2,000 statute miles and more.

Amazingly quiet (due to the aft fuselage mounting of engine jet pods) the JETSTAR is ideal for transition pilot training, heavy bomber crew training, and testing ground navigational aids. High-speed navigation training and gunnery practice, in-flight refueling indoctrination, and high-priority cargo carrying are additional vital uses for which the JETSTAR was designed.

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Like all Lockheed aircraft, the JETSTAR embodies simplicity of structure and functional systems—for high strength and reliability. Easy to maintain, economical to operate, the JETSTAR carries on the 25-year tradition of Lockheed's leadership in the design and manufacture of high-speed aircraft for the military, commerce and industry.

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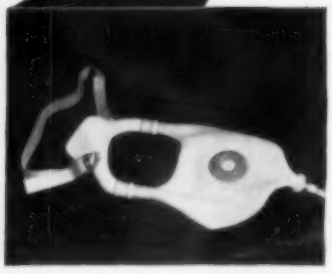
THEY ARE LOW-COST, TOO!

PILOT AND CREW MASKS

Passengers have a right to expect comfort and pleasing appearance in an oxygen mask. The Puritan disposable mask—originally developed to meet rigid hospital requirements—has many advantages to offer. The polyethylene nose piece fits the face comfortably and is easily adjusted to each individual. These complete, light-weight masks come individually packed and can be thrown away after use (no bothersome sterilizing). The Puritan disposable mask answers your passenger desire for comfort and convenience . . . answers your problem of a low cost unit.

Priced at only $1.00 each F.O.B. Kansas City (lower unit cost in larger quantity) No. 114011.



Ask any pilot or crew member what he wants in an oxygen mask. Chances are he'll say, "comfort, coolness and easy breathing." Here is the mask that gives all of these advantages. The Puritan No. 114000 nasal oxygen mask. A constant flow, rebreathing type mask with a comfortable fitting plastic nose piece and latex rubber bag. The nose piece is arranged to provide a perfect air flow in and out of the bag so that respiratory effort is minimized and mask is cooled for further comfort.

Carbon dioxide build-up is controlled.

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Have You Read?

(Continued from page 18)

862-page compendium consists of 17 chapters, each written by an expert in his field and each copiously illustrated with photos, line drawings, charts, maps and graphs. It begins with a comprehensive, presentation of the Atmosphere. Subsequent chapters deal with Modern Aircraft Types—civil and military; Theory of Flight and Basic Aerodynamics—principles, subsonic and supersonic; Airplane Structures; Propulsion — from theory through reciprocating engines to ramjet and rocket motors; Instruments and Operational Equipment; Man in Flight—the human elements in flight from lightplane to supersonic; Basic lightplane Flight Techniques; High Performance Flight; Weather; Instrument Flying; Navigation; Flight Control Agencies and Flight Rules; Helicopters; Aircraft Maintenance; Arctic Flying; Modern Airports.

The span of coverage and detailed treatment makes this volume useful to all airmen from the basic CAP Cadet and private student to the airport manager and professional pilot. *Modern Airmanship* fills a definite need for a complete up-to-date textbook for ground school courses and classroom instruction from a beginning level. On the other hand, it is an excellent reference and sourcebook for office, home, library and hangar.

This one is bound to find wide acceptability and use. It is the third volume to appear in an ambitious airpower publishing program initiated by the D. Van Nostrand people last year.

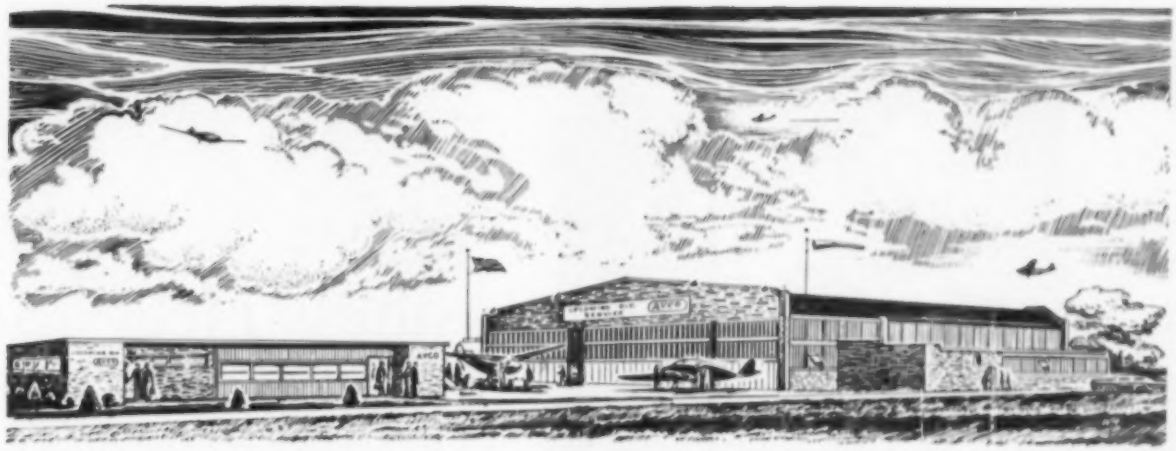
Two other general texts deserve mention here. *A Student Guide for Aeronautics* ($2.05), is a 141-page paper-bound workbook containing experimental problems, exercises and questions designed to teach basic aviation.

A book similar to Van Sickle's but not as definitive or complete is Merrill E. Tower's *Basic Aeronautics*—a 252-page textbook illustrated with hundreds of photos and functional drawings. It is published in two editions—a trade edition for individual use ($4.50) and a "text" for schools and instructional purposes ($3.70). Both of these are published by Aero Publishers, Inc., Los Angeles, Calif.

THE UNITED STATES AIR FORCE DICTIONARY, edited by Woodford A. Heflin (D. Van Nostrand, $4.75.)

This book is another invaluable adjunct to aviation education literature. It is the first complete definitive dictionary of the language of the air and of air science common to civil and military aviation. This monumental work was compiled through the facilities of the USAF's Research Studies Institute, Air University, and was five years under preparation by a special staff. It contains 16,500 entries which range the field of aerodynamics, meteorology, electronics, atomic energy, and operational flight as

(Continued on page 105)



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The Lycoming Williamsport Hangar established as a service center for all of its engine customers now embodies adequate modern equipment and is operated as a model engine service center—serving customers from many points around the world.

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The new administration and training building (pictured at left above) provides for flight test programs, coordinated with factory engineering personnel and training courses for Lycoming engine operators, as well as operations officers and pilot facilities.

For full information on facilities provided for Lycoming engine customers, write to Lycoming Airport Service Manager, Williamsport Airport, Pa.

AVCO Lycoming

Concept for the Business Fleet

GILL ROBB WILSON
Editor and Publisher

THE PRIVATELY operated air fleet of American business and industry is a national asset without which our continental enterprise would be extensively immobilized.

It is a matter of major importance that the strategic significance of this fleet to the national economy be brought into focus.

Comprised of some 30,000 aircraft in various categories, this fleet buys time for executives and management, creates opportunity for labor, extends the usefulness of highly qualified technicians, furnishes flexibility for specialization, opens possibilities for expansion and assures ready servicing of critical equipment.

Its pilot and maintenance personnel provide expert aviation experience and insight for business and corporation management. The fleet has public relations potential, which if not abused, has many applications. Aircraft available in numerous categories permit operators to make selection very close to their exact needs. Operating costs are a bargain where utilization is in sizable volume. It is significant that aircraft purchased with no business utility in mind, almost universally drift into at least partial business use as their owners see opportunity develop.

Furthermore, the fleet is effective insurance against immobilization of business and industry in possible crisis. Who can forget the situation of World War II when national effectiveness was crippled and business effort hamstrung by lack of flexible travel accommodations? One of the consequent penalties was a high mortality rate among harassed executives under pressure to save the land from defeat.

None may reasonably deny that air capability in recent years has been the hole card of the United States. Despite the roiling masses of revolution which outnumber us, we have maintained our position due to one specific fact—we have led the world aloft. The dictators have not been free to throw their cannon fodder against us in effective proportion. On the record, it is a historic triumph of American air capability.

Let us be very sure then that we understand the nature of this capability.

Too many people evaluate it as military airpower, per se. This is a superficial, and could be, a dangerous assumption. Even our great scheduled airlines suffer from lack of concept of their profound significance. Yet no nation, the United States or Russia, or any other, could produce or maintain defense aviation without civil air logistics to weld together a foundation of productive capacity and business management adequate to create military airpower.

Admiral Mahan, the brilliant expositor of seapower, made the point that battleships, per se, were not seapower. Seapower, he explained was the capacity of a nation to draw strength from the sea. Each lugger and tug and sloop and coastwise tramp was part and parcel of seapower. And so it is with the civil air fleet from the small personal plane to the business light twin and executive flying office and the great load carriers of domestic and foreign commerce. They all are tools with which we draw strength from the sky—strength to grow internally and consequently strength to stand firm in international affairs.

I do not suggest that a businessman or corporation without sound reason for ownership of aircraft should become an owner to further a national asset. I do believe that corporations or individuals, able constructively to utilize private aircraft, should give weight to the fact that such utilization is in the national interest. And I further believe that businesses and corporations should be at pains to set stockholders and employees straight on the strategic value of company aircraft both as competitive tools and emergency insurance against crisis. It is not constructive to leave the business aircraft hanging in a nebulous aura of concept somewhere between a mis-classification as executive luxury and a policy of keeping up with the Joneses.

The next step in business utility of aircraft will be in the area of corporate cargo lift. Cargo planes with an economic factor of a-nickel-a-ton mile will attract manufacturers of volume merchandise—especially in such lines as the automotive industry, farm equipment, business machinery and fabric concerns. The meat packing industry is another field. If the way was legally cleared, perhaps even now the freight forwarders could investigate long range charter distribution of general merchandise. But whatever the pioneering steps may be, merchandise distribution must inevitably become a function of the corporate fleet as has management flexibility and sales requirement.

I believe it will eventuate that present corporate and business flying is an educational process—a research in possibilities of aircraft utility for an expanding future. No man or company or government has ever yet found a ceiling for air capability.

Vapor trails high in the sky will remind you that the 707 is flying its proving runs. Soon these fine planes, the first American jet transports, will come off production. American Airlines will be first to offer jet travel in the U. S. A. Early in 1959 American will use the 707's on transcontinental Mercury service.

AMERICAN AIRLINES
America's Leading Airline

WHAT THE MILITARY AIRPLANE IS TO THE BUSINESS OF SECURITY,

THE COMPANY AIRPLANE IS TO THE SECURITY OF BUSINESS

WE WERE not among those who blew the big bubble for general aviation immediately following World War II—nor for a helicopter in every back yard. In fact, we were considered a mite reactionary in observing that the seed of general aircraft utility needed time to germinate; and that the plane manufacturer needed time to evolve a product commensurate with a variety of general requirements.

The anticipation that a flock of veterans would rush into peaceful skies was sound enough—but what could they do then? Rush down again, as near as we could see.

It was also factual that a flock of businessmen had acquired air indoctrination in the war. But what of it? Most young executives were occupied in re-indoctrination to business, and business had scant background of experience with corporation aircraft utilization.

But a decade has gone by. Nine-tenths of the aura of opportunism happily has faded from the aviation horizon. The businessman is in the throes of fierce competition. Time is money. The aircraft manufacturers have had opportunity to evolve a fair range of utilitarian products, backbone of which is the light twin. While we may not soon again see a year equal to 1956 in number of new business and executive planes marketed, neither will we see a rout of the business plane from its established place in corporate and professional activity. The year 1956 was not a peak of baseless optimism to be followed by a trough of disillusionment—a dreary repetition of so much of the lightplane's hectic past. General aviation is in a trend of permanent progress and has passed the point of unreasonable sensitivity to average business fluctuations, public

ANNUAL BUSINESS FLYING ISSUE

NOW AND BEYOND

By THE EDITOR

skepticism, and the effect of a normal accident rate.

A close observer in 1957 must mark that every step made in improvement of the vehicles reflecting greater utility, better safety or improved automation is quickly reflected in higher dollar volume of sales. Meantime, the prices of used aircraft have continued to advance and in several categories the market demand far exceeds the supply. Export of used aircraft also is clearing the way for the new plane market.

Another angle of consideration to be noted—aircraft originally purchased for pleasure and convenience alone are steadily being absorbed into the utilitarian pattern. It is a rare privately owned aircraft today that is not used at least partially for the professional or vocational requirements of its owner. This process already has had a drastic effect in popularizing the multi-place and tricycle gear category of single-engine aircraft over the former popular two-place and conventional gear plane. Unwittingly, the two-place plane market has been almost gutted—a contingency to be deplored from several aspects.

Let us note also the trend in proportion of active to inactive planes over the past several years. In 1952, of 88,545 civil aircraft, 34,506 were inactive. In 1956, of 85,320 total planes, only 24,888 were inactive. And in this year of 1957, of a total of 87,531 planes, only 22,843 are inactive. Most of these cannot be reconditioned, economically—they are war surplus.

Another factor which indicates the growing permanency of general aviation is the percentage of utilitarian hours of the total hours flown. Year by year, this percentage creeps steadily upward. For example, in 1952, the per-

centage was 59.3; in 1953—61 per cent; in 1954—63.6 per cent; in 1955—65.8 per cent. Our best estimate is that in 1956, this percentage took its sharpest rise and reached about 77 per cent of the approximate ten million hours flown in general aviation activity. The remaining 23 per cent of total hours were of course consumed in instruction and pleasure flying. The General Aviation Facilities Planning Group has estimated that during the next decade the total hours of general aviation will reach 20 million annually, and that business flying alone will produce 11 million hours. We have no yardstick by which to judge this forecast but it seems not unreasonable, barring national crisis of one sort or another.

The influence of our general aircraft utility has spread widely beyond home shores. In 1955, civil aircraft were sold abroad to the number of 1,290—749 of them new and 541 used. In 1956 the number of exported units was 1,351, of which 966 were new and 385 used. For the first four months of 1957, the comparative figures are 277 and 70. For a fuller treatment of this particular activity, the reader should consult the article of Mr. W. Hayward George, elsewhere in this mazagine.

We would not expect either 1957 or any immediately successive year easily to surpass the unit volume of general aircraft sales, except for one circumstance—the thin available supply of very light aircraft. Of course it may eventuate that the two-place vehicle, like the two-seat coupé of automobile history, is passé as far as volume demand is concerned. On the other hand, the two-place plane logically should always be in demand as the least costly of all planes—an entering wedge for the youthful owner, and it not only has special utility for instruction and various chores but stands in somewhat the same potential relationship to general aviation as the sports car stands in the automotive market.

A factor upon which we constantly seek to concentrate attention is the steadily diminishing number of active pilots in the United States. Perusal of the following table will show that in not one single state of the Union has recruitment of student pilots made up for the attrition rate. There are less active pilots in the country today than at any time in the last ten years.

In our judgment this is the weakest link in the entire national chain of progress aloft. To estimate what it has cost the government, and aviation itself, is beyond calculation. The monetary bill is the least consideration. The real cost is in diminishing national air ability at every level—defense, airline commerce, business flying, et al. Each successive national administration has refused to look this problem squarely in the face. The Defense establishment has preferred to spend recruitment money in combing the sticks for talent rather than to create an atmosphere of eager volunteering. No segment of the aviation industry sees any special responsibility for the broad motivation of the oncoming generations to aviation. And we avow, this situation could in the ultimate cost the country its life.

It is our hope that with the coming of a broader segment of businessmen onto the general aviation scene, some of the practical patriotism they possess, along with their genius for perspective, will cause them to take the cudgel of youth motivation and reverse a potentially disastrous trend. If this problem were soundly met, it would create its own market.

Of course, one of the greatest of all possible aircraft markets could be secured by wooing inactive pilots back into the air. The Civil Aeronautics Administration lists a total of 766,308 pilots on its rolls. Of this number only 259,567 have active ratings. This figure declined from 298,076 the previous year. The trend has been continuously downward year after year. Study of the detailed statistics indicates no area or climatic influence. The decline is percentagewise about average across the board.

DISTRIBUTION OF PILOT RESIDENCES BY STATES 1957 AND 1956

STATE	January 1957	January 1956
California	33,705	37,960
Texas	18,002	19,792
New York	15,544	18,543
Illinois	15,442	17,773
Ohio	12,785	15,025
Pennsylvania	11,481	13,813
Michigan	10,758	12,296
Florida	9,198	9,804
Indiana	7,445	8,703
Minnesota	7,095	7,713
New Jersey	6,993	8,103
Washington	6,682	7,822
Missouri	6,173	7,044
Iowa	5,833	6,903
Massachusetts	5,450	6,641
Kansas	5,296	6,225
Oklahoma	4,882	5,746
North Carolina	4,833	5,291
Wisconsin	4,760	5,513
Virginia	4,228	4,785
Oregon	3,822	4,584
Georgia	3,786	4,131
Colorado	3,744	4,139
Louisiana	3,247	3,501
Nebraska	3,186	3,962
Arizona	3,146	3,431
Tennessee	3,081	3,703
Connecticut	2,956	3,459
Maryland	2,730	3,007
Alabama	2,471	2,702
Kentucky	2,377	2,777
Utah	2,182	2,409
Montana	1,965	2,470
Arkansas	1,905	2,265
Idaho	1,902	2,227
South Dakota	1,831	2,188
New Mexico	1,725	1,860
Mississippi	1,660	1,863
South Carolina	1,608	1,912
West Virginia	1,525	1,893
North Dakota	1,388	1,601
Maine	1,229	1,459
Wyoming	1,031	1,253
Dist. of Col.	1,001	1,253
Nevada	872	1,015
New Hampshire	770	883
Rhode Island	722	843
Delaware	607	684
Vermont	488	580
Outside Cont. United States	4,025	4,577
TOTAL	259,567	298,126

One development we can mark with satisfaction is the growing tendency for pilot improvement in the matter of instrument ratings. A glance at the following chart will

inform that 6,993 instrument ratings were qualified for last year and this pace continues in 1957. So while we have fewer active pilots, the ones we have are on the average more highly qualified.

Civil Pilot and Other Ratings Certificates Issues

Type of Certificate	1954 Original Issue	1954 Additional Ratings	1955 Original Issue	1955 Additional Ratings	1956 Original Issue	1956 Additional Ratings
Student	43,393		44,354		45,036	
Private	15,523	923	15,866	1,082	16,399	1,128
Commercial	5,192	4,685	7,031	5,519	8,419	8,336
Air Transport	627	1,588	719	1,659	1,172	2,146
Flight Instructor	—	738	——	802	——	897
Instrument	—	1,928	——	2,781	——	6,993

Active planes only generally follow the state pattern of pilot population. For example, the list runs in order of numerical leadership—California, Texas, Illinois, New York, Ohio, Michigan, Pennsylvania, Indiana, Minnesota, Kansas, Iowa, Washington, Missouri, Florida, Wisconsin, Oklahoma, Nebraska—to name those with more than 1,200. California is far in the lead with 6,766 active aircraft. One-half of all civil aircraft are based west of the Mississippi although two-thirds of the American people live east of Ol' Man River. The ability of the airplane to cover long distances in short time is of course the explanation. Another angle is the number of small planes used by farmers and ranchers. People in the rural areas own planes. People around metropolitan areas rent them from operators.

In conclusion, let us mark a situation which we believe has greater import for all of civil aviation than anything in its history. It is a situation brought about by force of circumstance rather than deliberate intent.

Down to the conclusion of World War II, a great volume of military aircraft was necessary to deliver victorious firepower against an enemy. Emphasis was on fleets of combat airplanes. The broad aircraft industry was geared to produce such fleets—and, of course, the trainers that had to precede them.

Then came jet power and the atom bomb and successive appurtenances—automation, rockets, refueling et al—with long range missiles in the offing. Every phase of aerial deadlines multiplied fantastically. One aircraft now had a more lethal wallop than a thousand of its successors.

We began to hear the phrase "qualitative superiority." Personally, we think it is overworked to the detriment of quantitive superiority, but undoubtedly the capability of the new weapons systems does render former quantities of aircraft unnecessary. Cost would in any case prohibit them.

But what now of an aircraft industry that in the main has been geared to produce military aircraft in quantity? None can deny that the continuing strength of this industry is basic to national survival.

Well, for one thing, this industry must plunge with renewed vigor into research and development. "Qualitative superiority" is a dynamic and elusive target. But the production capability of the total aircraft industry cannot survive on research and development. In fact, government historically has used research and development more as a bait than as a business. Vital as it is, research success is not production capability and capacity.

How then will the broad industry maintain production character? Judge in two ways.

First of these will be a true delving into the subject of military air logistics. This subject holds vast possibilities and its surface has scarcely been scratched.

Second, the broad aviation industry will at least take a long hard look at the market potential of civil aviation in all of its phases. Here again, the surface has scarcely been scratched. We expect revolutionary concepts of civil utilization to be evolved. The valuable merchandise of the world inevitably must move on the skyways. The operation of airports, the control of traffic, the qualitative and quantitative enhancement of the business fleet, the joining up by aerial buses of suburban areas with their metropolitan centers, the creation of light and executive airplanes that businessmen actually can use as they use a car—all of these hills have production gold in them if ever the ingenious aircraft industry of the United States focuses attention on them.

Due to the contingencies of the world situation since the advent of powered flight, the airplane by and large has always been pointed at the big bad enemy—never at the friendly average man and his many needs. The friendly man has had to fit himself to what was offered. It was good if he was good. But even today a good pilot is an individual of very exceptional skills. Even the best airplanes demand it under many conditions.

We think the airplane is destined for better things. There will be some wailing and gnashing of teeth in the process of making it better in every category but there will also be many fortunes made.

Beginning last year and gaining momentum at the present time, the unit production of civil aircraft is in excess of military units. Of a total of 14,000 planes manufactured in '56, 7,200 were for the civil market. The ratio of power plants did not quite keep pace—less than half of 24,500 engines going to the civil market—but 1957 will see almost an equal division. Naturally, the airframe weight of civil aircraft produced is only about one-sixth of the military airframe weight; and the dollar volume is somewhere in the same ratio. Nevertheless, these figures also will change materially unless communist aggression suddenly reverses prevailing trends.

Government has a heavy stake in the enhancement of this civil production. The United States can be secure only so long as the aircraft industry retains resources capable of outproducing any enemy in volume and quality. If civil production is to take up the slack and assure our entire aircraft industry of this continuing capability, government had best put some fresh thinking into its consideration of manufacturing incentive, the airline economic problem and the general aircraft fleet itself. This will call for definitive statesmanship. The President's Aviation Advisory Committee has its work cut out. END

A TOP-LEVEL EXECUTIVE OF A LARGE CORPORATION TELLS WHY HE FEELS THAT THE AIRPLANE IS A NECESSARY TOOL OF MANAGEMENT.

The role OF THE Company-Owned Airplane

By GEN. LUCIUS D. CLAY, USA (Ret.)

Chairman of the Board, Continental Can Company

The Continental Can Company operates six aircraft, one of which—a B-26—is shown here.

MY OLD FRIEND, Gill Robb Wilson, has asked me to set forth my views with respect to the proper role of the corporation-owned aircraft. Of course, the ultilization of company-owned and operated aircraft must vary according to the requirements of the corporation concerned, and the general purposes to which it directs its aircraft activities. The Continental Can Company has maintained a small fleet for more than a decade and it considers its Air Division, which is responsible for the utilization of its fleet, not only as one of the operating divisions of the company, but also as essential to efficient conduct of business.

Our company is a diversified packaging corporation with more than 150 manufacturing plants located throughout the United States and Canada, and with many sales offices in the principal cities in both countries. Its plants have been located to serve its customers and, thus, frequently are in agricultural areas not readily served by direct commercial air routes. Our operations are decentralized as fully as possible, with control being exercised through prescribed policies and procedures. However, the real exercise of control requires frequent visits to plants and sales offices by senior executives and supervisory personnel. Such contacts are encouraged by the availability of company airplanes, and, in fact, often made possible only because these aircraft are available.

During the year, at least one of our senior executives visits all of the company plants. Several executives visit 50 or more plants or sales offices. Thus, our senior executives learn to know our plant managers and our district sales managers personally, and they in turn know us. We believe that this personal relationship contributes materially to a cohesive organization—that men who know each other work together much more closely than would otherwise be the case.

Our aircraft division is operated as an independent division of the company, maintaining its headquarters and maintenance facilities at Morristown, N. J. It operates on an approved budget and keeps accurate cost records. It operates six aircraft at the moment. One of these is a four-engine converted bomber, another a two-engine converted bomber, three are Lockheed Lodestars, and there is one smaller aircraft. When an aircraft is assigned to an operating division, that division is charged for the use of the plane. Since each division manager is held responsible for the profits of his division, he must make the determination that the use of the airplane will contribute to the efficiency of his operations.

Each airplane is scheduled by Friday for the following week under a priority system and this schedule is circulated so that vacant spaces may be filled as far as practicable. Wives or members of families may travel only when there is vacant space; however, we are very glad to have them accompany the executives using the aircraft if space is available as we believe the resulting morale is sufficient justification, particularly as little, if any, additional cost is involved. We do not use our airplanes for junkets; however, we do permit senior executives of the company to use our planes to reach and return from their summer homes as we believe this gives them many more hours of rest and increases their effectiveness. We permit no liquor to be served on our airplanes, and the responsibility, of course, for enforcing this rule rests on the aircraft captain.

General Lucius D. Clay, Chairman of the Board and Chief Executive Officer, Continental Can Co., known for his world-wide engineering and military leadership, has long been abreast of aviation's potential. In 1934 he represented the U. S. at the Permanent International Navigation Conference in Brussels and in the critical pre-war years of 1940-41, he was in charge of the defense airport program.

The author, boarding Continental Can Company's B-26.

We do not claim air travel in company-owned airplanes to be cheap transportation on a cost-per-passenger-mile basis although, if you compute the time-saving for the higher salaried executives, an excellent case can be made that it is low-cost transportation. We know from experience that it encourages the field visits by senior executives which we believe essential to efficient operation; that it delivers executives in the field fresh and ready for work; that it guarantees emergency transportation when executives must visit the field and cannot secure other transportation. We are convinced that the frequency and quality of their supervision is greatly improved because our own aircraft are available to our executives, and that the intangible benefits which result are far in excess of the costs of the service.

Our aircraft division is operated almost is if it were a small airline. Our pilots are selected carefully and thoroughly schooled at frequent intervals, particularly in instrument flying. Maintenance is scheduled to minimize the time that the planes are on the ground, realizing that maximum utilization of the aircraft is essential to economical operation.

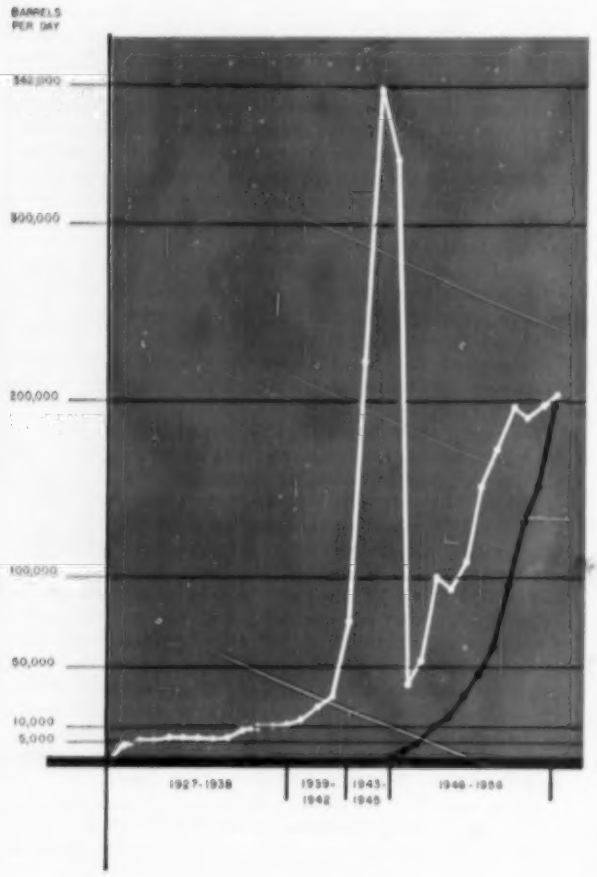
We regret very much that fully satisfactory airplanes are not available for corporate use, as we recognize that our present fleet is becoming outmoded. We have placed an order for a 12-place turbo-prop plane for delivery in 1958, and have tentatively ordered three 4-jet engine airplanes designed specifically to meet requirements for company aircraft. Unfortunately, there is as yet no certainty that these jet airplanes will be produced. We are hopeful that such an airplane will be on the market shortly as its additional utility would increase the value of our company air service to our senior executives. Our estimates indicate that four such aircraft would replace our existing fleet and provide greatly improved service at no greater operating cost. We believe that there is a real need for such an airplane and that the company which offers it first will find a ready market.

To summarize, we believe that the efficient operation of a large company requires its senior executives to visit its field installations frequently throughout the year. We realize that to make such visits frequently they must be able to do so on short notice. We do not believe that these visits would materialize to the extent we deem desirable unless we had available company aircraft for their use. We furnish each of our salesmen with an automobile which is more costly to operate than public transportation. However, without the automobile, several salesmen would be required to service the same area. We believe that without company aircraft, we would need more senior executives to properly supervise our activities and the additional salaries would pay for a large part of our air transport even if the executives could be found.

We are living in an age of rapid communication in which movement by air has become essential to efficient operation. A large part of this service can be provided by company aircraft with intangible benefits which warrant the additional cost in improving the efficiency of communications throughout the company, and in saving the time and effort of its executives. In point of fact, we believe that the majority of our stockholders are as air-minded as we are, and recognize the corporation aircraft as another important and necessary tool of management.

END

The graph below shows, in barrels per day, the comparison between the demand for jet fuel (indicated by black line) and aviation gas (indicated by white line). Note that highest peak for avgas was reached during World War II.



AVIATION AND THE Oil Industry

By T. S. PETERSEN
President, Standard Oil Company of California

PETROLEUM PRODUCTS HAVE QUIETLY KEPT PACE DOWN THROUGH THE YEARS IN THE NEVER-ENDING RACE BETWEEN ENGINE POWER AND FUEL QUALITY.

Theodore S. Petersen, President of the Standard Oil Co. of California since 1948, has long experience in world-wide management and marketing. Standard of California early foresaw and consistently furthered the parallel developments of aviation and its fuels and lubricants. Mr. Petersen, Army veteran, is consulting professor of the Graduate School of Stanford University and renders great national service on many government, social and industrial boards.

WHAT THE MILITARY AIRPLANE IS TO THE BUSINESS OF SECURITY,

THE COMPANY AIRPLANE IS TO THE SECURITY OF BUSINESS

ON MAY 16, 1927, the San Francisco Marketing Department of Standard Oil Company of California received a wire asking with a sense of urgency: "Can you supply Red Crown gasoline in New York in three days for Lindbergh's proposed transatlantic flight?"

Standard's reply reflected the typical businessman's curiosity: "Who is Lindbergh?"

Four days later the whole world knew who Charles A. Lindbergh was. Standard of California met that three-day deadline and Lindbergh and "The Spirit of St. Louis" did the rest, completing the historic 3,600-mile flight to Paris.

Circumstances have not always been that dramatic and results have usually attracted less attention, but over the three decades since Lindbergh crossed the Atlantic the story of fusing engine and fuel developments to produce aviation history has been repeated countless times. Indeed, the aviation and oil industries have been wedded from the very outset—a marriage that has proved fruitful for both.

A Sikorsky S-55 helicopter picks up drilling crew from an oil rig in Bay Marchand field off Louisiana shore to fly 40 miles to land.

Latest example of this occurred only this past July when Chance Vought ordered a supply of Standard of California's JP-5 jet fuel for delivery to Los Altamitos Naval Air Station near Los Angeles. Traditionally, JP-5 is employed in carrier-based operations, but this time the fuel started Chance Vought's speedy F8U1 Crusader on the first leg of its record-shattering California to New York flight. Cruising at speeds greater than 1,000 mph and at altitudes more than ten miles up, the Crusader telescoped the achievements of a half-century in a mere three hours and 23 minutes.

Behind that record stood millions of hours of research and testing in the never-ending race between engine power and fuel quality which began at Kitty Hawk, in 1903, the day the Wright brothers made the first historic sortie. Aircraft have come a long way in the 54 years since. If aviation has been characterized by any one thing it has been rapid development.

Much less self-evident but every bit as real is the progress registered by the petroleum products which have grown up with the aircraft they power and service. From a technical standpoint, modern gasolines and oils have nothing more in common with the fuels used at Kitty Hawk than modern jets have with the Wright brothers' plane.

They didn't even record octane number as such in 1918 when Standard of California came out with the first gasoline in the United States especially designed for aviation, yet it is estimated that fuels have shown a fourfold increase in knock-limited power since that time. And quality has been only half the picture. Quantity of military and civilian gasoline and jet fuel demands has become an equally important consideration with peacetime consumption now at an all-time high.

The four-engine aircraft which fill the airways today burn 600 gallons of high octane fuel every hour. Smaller planes are also thirstier than formerly. On a national scale this thirst is translated into the 70 million barrels of jet fuel and 75 million barrels of aviation gas it takes each year to keep America's military and civilian planes aloft. Thus, availability plays a large part in determining specifications for widely used fuels, resulting in a compromise between the quality and quantity to best meet the nation's overall aviation needs.

Unfortunately, this standardization of fuels has not always been in effect. Before 1930, the anti-knock quality varied greatly and, to a large extent, geographically. California aviation fuels were definitely superior in anti-knock quality because of the nature of California crude oils. It became commonplace in the 1920's to start a flight from California with a smooth-running engine only to have it heat up after refueling at some eastern terminal because of detonation. This lack of uniformity led Standard to build the first variable compression knock test engine in the United States in 1924 to help in selecting aviation stocks of high anti-knock quality for blending purposes.

Soon broader steps were taken to control the quality of aviation fuels on a national scale. First important move in this direction came in 1929 when Standard of California joined with New Jersey Standard and Indiana Standard to set up the Stanavo Board with an eye toward promoting aviation by making high quality aviation fuels and lubricants universally available. Specifications established by this board of chemists and engineers are believed to be the first ever drawn up for commercial aviation fuel.

Today, high quality anti-knock fuels are procurable throughout the country because of the extensive facilities installed during the last 15 years for synthesizing high anti-knock quality hydrocarbons. Refineries turned out 182 million barrels of aviation gasoline in 1944, about 11 per cent of the nation's total crude production for that year. The present peacetime requirement is about half that much, but average octane number has climbed considerably since World War II. And now higher speeds, altitudes and operating tem- (*Continued on page 64*)

The airplane and

Palmer E. Hoyt, Editor and Publisher of the Denver Post since 1946, has had a long and distinguished career in the fourth estate, involving every phase of newspaper work. Having travelled the world by air, and served on the Presidential Aviation Policy Committee of 1947, as well as directing the Office of War Information in 1943, Mr. Hoyt has authored both air concept and practice. He was an Army Sgt. Major with the A.E.F. in World War I.

NOT SINCE THE DAYS OF THE GOLD RUSH HAS COLORADO, AND DENVER ESPECIALLY, SEEN SUCH A SURGE OF NEW ENTERPRISE.

By PALMER HOYT

Editor and Publisher, The Denver Post

DENVER IS ROCKETING ALONG on the wings of the Air Age. Since 1950 aviation has brought the city 10,000 new jobs and an added payroll of $52 million. By 1960 the totals will pass 23,000 jobs and $180 million in air payrolls.

Four major aviation companies—Glenn L. Martin, Stanley, Sundstrand and Ramo-Wooldridge—have erected giant multi-million plants in the Denver area. Scores of smaller related aviation and electronics industries are following.

The Air Force Academy is training air cadets at Denver's Lowry Air Force Base while a permanent site for the West Point of the Air is located near Colorado Springs. The nation's Continental Air Defense Command operates out of Colorado Springs now, and the Air Force Finance Center has been moved to Denver from St. Louis.

Six major airlines, linking Denver with any spot on earth, have ordered $564 million worth of new aircraft to be in service within the next five years. The city's municipal airport, Stapleton Field, is a $15 million plant that ranks with the world's finest after a $5 million face-lifting. This year well over one million passengers will board or leave a plane in Denver—a 150 per cent increase since 1950 that was not expected until 1965. Frontier, the nation's biggest feeder airline, operates 14 flights a day out of its Denver headquarters to 39 cities of the Rocky Mountain states. New York and Washington are only six hours away, San Francisco four, via United or TWA. Continental, our big regional carrier, now gives us a third coast-to-coast service. Braniff connects Denver with eight Latin American countries, and Western ties into Canada.

This magnificent aerial photo of the sprawling Glenn L. Martin

New skills, new business, new opportunities are pouring into Denver and Colorado. The state hasn't seen anything like it, not even in the fabulous days of the gold rush. At *The Denver Post*, we think the air age has made all news local, whether it happens in Denver, London, Moscow—or a small Kansas wheat town. And if it happens within reasonable distance, a flying *Denver Post* reporter-photographer team is likely to be there and back in time for the home edition.

Two years ago on a dull news morning, two big freight trains piled up on a transcontinental track in the wild reaches of New Mexico, over 400 airline miles from Denver. We had the story and pictures in the home edition that day.

WHAT THE MILITARY AIRPLANE IS TO THE BUSINESS OF SECURITY.

THE COMPANY AIRPLANE IS TO THE SECURITY OF BUSINESS

the fourth estate

plant at Denver was made by *Denver Post* lensman, Dean Conger.

How? By jet airplane. Our photographer was whisked in two fast passes over the wreck, flying upside down to get his aerial photos, and got back with time to spare—with his pictures. It is now almost as commonplace in Denver to send out our reporters and photographers in airplanes and helicopters as it is to dispatch them by subway in New York, taxi in Washington or pedicab in Shanghai.

Let's just take the last few months, for example. We have covered floods, tornadoes, skyscraper construction, city watersheds and reservoirs, train-truck accidents, breaking dams, even a rodeo by flying teams of reporters and photographers. Two of our photographers hold their own pilots' licenses and one of them owns his own plane.

I mentioned a rodeo. That might be an interesting sidelight of how the air age has narrowed the wide open spaces of the west. I was referring to the Granddaddy of 'Em All—the Cheyenne Frontier Days. Every year *The Denver Post* runs a special train, loaded with a thousand area business and government leaders to the opening day festivities. And when we walk out of the rodeo grounds at the end of a wild and wooly day, *The Denver Post* is on the street with full pictures of the train's departure in Denver and arrival in Cheyenne.

We just fly up, shoot our pictures, fly back in time for the home edition—and then fly the papers into Cheyenne, all in two hours.

And remember Elijah, the now world-famous hermit horse of the Rockies? *The Denver Post* broke that story, on front pages all over the nation, by airplane. It couldn't have been covered any other way—but that is no problem any more even in the remotest part of our mountains and deserts.

I am thinking now of that widely circulated aerial photograph taken by *The Denver Post* over towering, snowpacked Cumbres Pass on the remote Colorado-New Mexico border last winter. For days, 40 trainmen were stranded just below the summit on a stalled snow-covered freight. The whole world, by aerial photograph, could actually see their plight, and watch the painstaking rescue attempts to plow through to them.

Or the terrible Medicine Bow and Mount Moran airplane accidents in Wyoming, the mid-air collision over Grand Canyon, Hurricane Audrey—*Denver Post* reporters and photographers covered them all in the only way they could have been covered—by air—and in time for the home edition.

And a word about the future.

Right now we are exploring the idea of fanning out by helicopter, circulation-wise. As costs come down and service improves, newspapers everywhere are going to spend a lot of time and money exploring "air editions" to distant cities.

The Denver Post has been through this before, and we are not discouraged. Past efforts to fly our papers hot off the presses to some of our fast-growing smaller Colorado communities like Alamosa and Monte Vista or even into Wyoming and New Mexico, have been dampened by high costs, bad weather and uncertain flying conditions. One of our previous efforts was frustrated by lack of sufficient commercial air freight space. We are, however, flying *Posts* to Farmington, New Mexico and Durango, Colorado.

At one time, before the Korean War, we ran off a special air edition for booming Albuquerque, the nation's fastest growing city. It's three hours away by air, nearly 500 highway miles. But *The Denver Post* flew in today's news today, and circulation reached 1,800. We picked Albuquerque for this experiment largely after taking a long look at general weather conditions. We found they were favorable and they proved to be. But our air edition cracked up, not on the lofty peaks of the continental divide, but on the rising costs during the Korean War—including costs associated with developing our own fleet of planes large enough to carry the papers.

We believe the future of Denver is tied to the progress and changing character of man's flight as emphatically as any community in the United States. END

WHY CESSNA IS BUILDING

The pressurized Cessna model 620 executive transport is powered by four 350 hp, six-cylinder Continental engines.

THE ONE QUESTION we hear repeatedly is, "Why is Cessna building the Model 620?" If this question had to be answered simply, it would be "faith and philosophy."

There never has been an airplane designed to meet all the specialized needs of American business. It probably never will be possible to create an all-purpose vehicle. The purpose covers too large an area. An all-purpose airplane is a no-purpose airplane.

Business firms using airplanes today purchase them to meet a specific requirement. Each type of aircraft is designed to fulfill a particular need and the purpose must justify the purchase. A good airplane is good because it contributes more than it costs to all concerned.

We think of today's aircraft as comprising a pyramid. All aircraft currently available can be illustrated graphically on the pyramid. The base of the pyramid is made up of the single-engine fleet which represents a volume market. The mid-section of the pyramid is comprised of light twin aircraft. This represents a fair sized portion of the market but is a smaller segment than the single-engine market. The top of the pyramid is made up of large corporate aircraft. While it represents the smallest portion of the market in units, it occupies an impressive share of the dollar volume market because of the selling price of individual units.

In 1952 we had plans well underway for the expansion of our single-engine line as well as the addition of the 310 to the light twin category. It was time to look to new horizons. Since our business has been built on the philosophy of building a complete line of aircraft, it was decided to examine thoroughly the large corporate market.

We asked ourselves, "What type of airplane would the traveling executive like to have and what type would he buy?" We decided to ask our prospective customers.

We outlined a program of discussion on the design of

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Mr. Dwane Wallace, President, General Manager and Director of Cessna Aircraft Company, is a graduate aeronautical engineer and has been a pilot in his own right since 1929. A native Kansan, he has served as Chairman of the personal aircraft Council of the AIA, and long been a constructive and farsighted leader in the field of general aviation.

CAREFUL RESEARCH AMONG CORPORATE AIRCRAFT USERS CAUSED CESSNA TO DESIGN A NEW EXECUTIVE AIRPLANE.

THE MODEL 620

By DWANE L. WALLACE

President, Cessna Aircraft Company

such an airplane, and then organized the program for implementation. During the next two-year period, several hundred top level executives and their corporate pilots who either operated large corporate aircraft or were interested in purchasing, were interviewed for their ideas, opinions, likes and dislikes. The results of the interviews were tabulated and studied.

The results were specific although not surprising. Requirements for a large corporate airplane were fairly consistent. The flying executives and their pilots wanted six basic things—safety, all-weather capabilities, comfort, speed, economy and general utility.

With safety, there was no compromise. Although some indicated it could be achieved with a twin-engine airplane, the majority said four engines were desirable.

Practically all executives and pilots said all-weather capability was important. The all-weather requirement in turn favored the four-engine configuration. Compatible with the all-weather perform- (*Continued on page* 106)

ALTHOUGH PRIMARILY DESIGNED FOR MILITARY USE, THIS JET WILL FILL A DEFINITE CIVILIAN NEED FOR FAST AND COMFORTABLE CORPORATE FLYING.

LOCKHEED'S JET UTILITY TRANSPORT

By HALL L. HIBBARD
Senior Vice President, Lockheed Aircraft Corporation

Hall L. Hibbard, Senior Vice President of Engineering, Lockheed Aircraft Corporation, a Kansan by birth, graduated from M. I. T. in aeronautical engineering in 1927, after taking his A.B. in 1925 at the College of Emporia. Project engineer with Stearman and later with Stearman-Varney, he joined Lockheed in 1932. A Fellow of the Royal Aeronautical Society and of the Institute of Aeronautical Sciences, Mr. Hibbard has received many engineering honors both in the United States and abroad. By invitation of the German government, he lectured on design in Berlin in 1935.

LOCKHEED HAS "MOVED" into the jet utility transport field with a new design concept. The L-329 is a ten (or more) place, swept-wing, passenger plane powered by four J-85 General Electric turbojet engines mounted on the aft fuselage. Design capabilities call for speeds between 500 and 550 mph with a range of 2,000 miles and cruising altitudes up to 45,000 feet. Wing sweep at the leading edge is 34 degrees.

Dimensionally, the aircraft is approximately 59 feet in length with a wing span close to 54 and empennage span of almost 25. Tail height is 20½ feet. With a center line fuselage height of 14 and a fuselage width of slightly more than 6½ feet, the aisle headroom is ample for any passenger unless he is well over being a six footer.

The concept of mounting engines high on the aft fuselage has been under study at Lockheed for some seven years. When design considerations of the L-329 were first inaugurated at Burbank and Marietta, Ga., we considered the possibilities of locating the engines in the wings or suspending them on pods beneath. Whether to use two or four engines was of course a primary decision. With the die eventually cast for the four engines, the mating of the power plant to the fuselage behind the wings appeared to have numerous excellent advantages.

In the first place, with the engines high above the ground and protected by the wing, danger of ingestion by runway debris is cancelled.

In the second place, location of the turbine wheels well behind the pressure bulkhead and fuel tank area is a consideration in designed safety. Likewise noise is reduced with all rotating parts aft of the pressurized and air conditioned cabin. In event of a forced or gear-up landing, the engines are shielded by the forward fuselage and wings, thus minimizing chances of fire. Free stream air spaces and firewalls as well isolate the engines from the rear fuselage.

There are several advantages which will be of particular interest to pilots. First of these is that the yawing will be very slight in case of an engine failure. Second is that, with the exhaust wake so widely separated from the airframe structure, buffeting and vibration—with consequent fatigue—is greatly minimized. Visibility for both crew and passengers was of no slight consideration in the engine mounting.

For the service crews, ground handling and maintenance is made easier. Engine tinkering from a low portable workstand is readily conducted through removable panels. Aft sections of the engine nacelles also are easily removable.

Cabin pressurization is at the 8,000 foot level. The two-

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Lockheed's small speedy L-329 transport is powered by four jet engines mounted high on the aft fuselage.

man flight crew additionally is provided with a diluter-demand oxygen system, while disposal type masks and demand regulators for 100 per cent oxygen are available for passengers. Hot meals may be served in flight by an ingeniously equipped galley. Actually, in passenger and crew comfort, and in aircraft performance, the L-329 compares with the large jet transports—at a fraction of the cost. Even baggage space is ample and instrumentation uncluttered. No special landing or take-off facilities are required.

Origin of the idea of such an aircraft as the L-329 dates back to 1951. In that year, the Wright Air Development Center of the Air Force sketched a design for a small jet utility transport.

The Air Force was quick to see the importance and necessity for such an aircraft. Officers serving in office jobs were having to keep up their training and flight proficiency in reciprocating engine-powered vehicles in an era of a "jet age" Air Force. Special missions calling for the use of utility-type aircraft were being performed in aging B-25's and C-45's for an Air Force whose very reason for existence depended on global mobility.

By 1956, the service definitely wanted such a plane—and wanted to buy it "off the shelf." Maj. Gen. D. H. Baker, USAF Director of Procurement and Production for AMC, invited manufacturers to develop with their own funds, such a craft.

"The Air Force has a requirement for a considerable quantity of jet aircraft to fulfill utility and pilot readiness training missions," General Baker wrote the aircraft manufacturers. "As we advance into the Jet Age with accompanying increases in speed and altitudes, we are entering into a new era of requirements for many supporting missions in the Air Force. Aircraft such as the B-25 and C-45 are rapidly losing their effectiveness in accomplishing their Air Force missions. It has become apparent that new utility aircraft are required to attain compatibility with the high speed and high altitude jet combat forces; and to enable the Air Force to achieve the mobility demanded by concepts of modern war."

He added: "It appears that commercial requirements for such utility and transport aircraft are realistic and being developed at a pace comparable to the early development of piston engine commercial transports."

As between the two-engine jet combat readiness trainer and the four-engine, larger utility trainer-transport—Lockheed chose to develop the utility transport.

The 329 is the result—designed with not only present but future needs in mind to provide economical speed and safety with high utility and minimum fatigue for military and civilian officials who must make quick connections between destinations. The plane is specifically pointed to serve small personnel groups and high priority cargo. Its uses will be manifold—staff transport, long range missions, key evacuations, special troop carrier assignments, and as an executive aircraft.

It was a happy circumstance that, while Lockheed entered this field to meet an expressed need of the Air Force, the military need is today matched by business flying. The four J-85 GE engines on a plane weighing only 28,000 pounds provide reserve power in event of one or even two engine failure. They also insure fast climb in weather contingencies and "around the weather" range if such is desirable.

After engineers at Burbank and Marietta had decided upon final configuration of the L-329, work was begun on the first prototype at Burbank in February, '57. C. L. "Kelly" Johnson, V. P. of engineering and research has personally directed the building of the prototypes and put the same tight schedule on the L-329 that he did on the F-80 which was built in 120 working days. First flight of the prototype was scheduled for this September and there never was any question of making it.

Lockheed has great confidence in and high hopes of this aircraft. We never produced an aircraft of such design before but, until the advent of the Constellation and the first U.S. production jet fighter, the F-80, and the F-104, we had never built such designs as those. The newly designed J-85 engines—light, compact and efficient, seem especially desirable for utility transport power. Production of the L-329 has been assigned to the Marietta division. END

The philosophy behind the new GRUMMAN

INTRODUCTION OF A NEW TRANSPORT, "DESIGNED SPECIFICALLY FOR MODERN BUSINESSMEN," MARKS THE RE-ENTRY OF GRUMMAN INTO THE COMMERCIAL AIRCRAFT MARKET AFTER A SEVEN-YEAR ABSENCE.

By LEON A. SWIRBUL
President, Grumman Aircraft Engineering Corporation

Leon A. Swirbul, co-founder with Leroy Grumman in 1929 of the Grumman Aircraft Engineering Corp., and its president since 1946, has had a distinguished career in design and production of both civil and military aircraft. While Grumman planes are most widely known as shipboard fighers and attack bombers of the Navy, the company's amphibians—Grey Goose, Widgeon, Mallard and Albatross—have also played a valiant part in civil air progress. Mr. Swirbul holds a Presidential award of the Medal of Merit and is widely identified with social and educational progress growing from aviation.

Model of Grumman Aircraft's new "design 159," executive transport powered by two Rolls Royce Dart turbo-prop engines.

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EXECUTIVE TURBO-PROP TRANSPORT

EXECUTIVES TODAY work in an era where time, rather than distance, is the most important business dimension. Or, to be more exact, the modern business executive would like to work in such an era.

Despite the tremendous progress aviation, per se, has made since World War II, executive flying has not kept pace with military and airline flying. The near future, 1959/60, will offer 600 mph jet airline service to transcontinental and transoceanic passengers. Such U.S. manufacturers as Douglas, Convair, and Boeing and Great Britain's jet pioneering DeHavilland (Comet) Company, will put their giant commercial airliners into service in the near future. Jet fighters such as Lockheed's F-104, Grumman's F11F-1F Tiger and others have gone to unheard of speeds and altitudes.

What of the so-called "executive aircraft" for the time-conscious businessman? Business flying was by far the major segment of general aviation in 1956. The term "business flying" covers operations by corporations, companies or individuals carrying out in their own aircraft the work of their given enterprises or professions in the same manner that they might use their automobiles or trucks. Such users cover a wide range of activity, including manufacture, merchandising, banking, construction, transportation, public utility, oil production, mining and the like. Nor is business flying confined to large, well-known companies. Thousands of aircraft in business are owned by smaller concerns, partnerships and individuals.

In 1955, business planes flew an estimated 4,300,000 hours as against 3,200,000 hours logged by the nation's airlines. In comparison with 550 cities served by scheduled transport, business planes arrived at and departed from more than 7,000 U.S. airports and fields of varying sizes and types.

The Civil Aeronautics Authority estimates a 50 per cent increase in business airplanes over the next five years; and that the next decade will see 80,000 business aircraft in operation. These increases will and must reflect significant improvements in the performance and quality of business planes.

About 36,000 aircraft did some business flying during 1956—an increase of 2,000 planes over 1955 and 20,000 more than in 1946. These 36,000 airplanes were not, however, used exclusively for business flying since general aviation aircraft usually engage in several different types of flight activities. Present, CAA studies indicate that some 18,000 to 19,000 aircraft were used primarily in business during the period 1953-1955. The fleet ranged from small two-place models to large multi-engined transports. The year 1956 showed the following summary of business aircraft:

The "business fleet" numbered 21,000: 7,000 firms own and operate 12,000 planes.

—9,000 private planes are used for business.

—14,000 planes do some business flying in the course of a year.

For the twelve month period, June 1955 to June 1956, as compared with the preceding 12 months, U.S. production of:

—4-place aircraft increased 51 per cent.

—5-7 place aircraft increased 47 per cent.

—Twin-engined aircraft increased 45 per cent.

These figures point up demand for higher perfection of aircraft and engines, ground facilities, communications, equipment, cabin furnishings, decor, and other conveniences.

In appraising development of business flying, it is important to remember that multi-engine aircraft have a higher annual utilization than single-engine planes. Single-engine, one and two-place planes average about 110 hours a year; single-engine, three or more place aircraft average about 180 hours; multi-engine planes average around 340 hours. And bigger and faster aircraft increase miles covered at a higher rate than aircraft hours.

Aside from the increasing quantities of business planes of all types, the trend to more passenger capacity and multi-engines has a market significance of its own. As emphasis shifts to larger and faster airplanes, more and more concerns find it necessary to employ professional pilots in order to obtain maxi- (*Continued on page 78*)

BUSINESS BRANDS

Here, and in pages following under the title "Business Brands," is presented a typical cross section of general aircraft in action—random examples of a vast fleet of some 30,000 planes serving every conceivable type of industry, profession and business. The text, some brief, some more detailed, is the comment of the users themselves. The reader will become aware of business expansion made possible, of new markets made accessible, and of basic business economies achieved.

IDEAL

LOCATED in Denver, Colo., the Ideal Cement Co., has been using an airplane for the conduct of its business since 1945. At that time, the late Claude K. Boettcher, then president, acquired the first twin-engine Beechcraft to be delivered to a private individual following World War II. He used it extensively on cement company business and in connection with his other interests. While on vacation in Florida, that winter, and not in need of the airplane for several weeks, he suggested to Cris Dobbins, then executive vice-president and now president, that the aircraft be used for transportation of top management officials.

Mr. Dobbins was not receptive to the idea and acceded only upon Mr. Boettcher's insistence. The Beech remained idle in Denver for several weeks until one day an emergency arose which required fast transportation. The trip, usually 27 hours by train, took only three hours by plane. Shortly after, Ideal Cement Co. acquired a surplus government aluminum sinter plant in Mobile, Ala., and in four months the executives flew 70,000 miles between Denver, Mobile, Pittsburgh, Washington and New York.

The worth of the airplane was proven and Mr. Boettcher transferred the Beech to the company. It was in use until May, 1947, when the present DC-3 was purchased. In January, 1957, Ideal Cement Co. took option on a Fairchild F-27 turboprop transport. The option firmed into a purchase contract last June.

According to president Cris Dobbins, the usefulness of a plane in company business can be stated as follows: "Having available a well equipped plane with competent crews removes the time-space element in calculations regarding any problem. The mental and physical capabilities of top management can be devoted wholly to the assignment at hand without the frustrations of time schedules, reservations, baggage and all the other petty problems related to getting about from place to place over the very wide spread area of our operations."

Pillsbury

THE MOST effective utilization of Pillsbury Mills' airplane, a Beechcraft E-18, is attained by concentrating schedules to cities that will allow return to headquarters at Minneapolis in the shortest possible time. The plane is flown 650 hours a year or approximately 310,000 passenger miles. Average length of flight is about 500 miles. The aircraft's primary function is the safe, comfortable and convenient transportation of Pillsbury personnel.

Upjohn

ONE of the nation's leading manufacturers of pharmaceutical products, the Upjohn Company radiates a network of 18 branch sales and distribution offices from the home office in Kalamazoo, Mich. Through this system Upjohn is able to bring information about new drugs to physicians quickly and to bring the drugs to drugstores as speedily. In the never-ending battle against disease and death, time is of the utmost importance.

To its communications network, The Upjohn Company added an airplane in 1956. Mr. C. V. Patterson, executive vice president, said the decision to purchase the aircraft—a Learstar—was made after a comprehensive study of the problem of transporting executives to and from sales meetings, company medical and research personnel to meetings and of bringing key scientists from important research centers to Kalamazoo for conferences.

"In all cases," said Mr. Patterson, "the problem was that these people could not afford to spend any more time than was absolutely necessary in traveling. Perhaps the best measure of how important the airplane has been in meeting our transportation problem can be gleaned from these figures: In a little over six months of operation the Learstar has logged more than 500 hours in the air and well over a half million passenger miles. It is impossible to estimate the hours saved in travel, but since Kalamazoo is off the main east-west and north-south commercial trunk lines, the time

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spent in waiting for connecting flights at either Chicago or Detroit was very great."

MANUFACTURERS of production machinery, the Seneca Falls Machine Co. of Seneca Falls, N. Y., has operated its own plane for more than three years. A Beechcraft D-18S, it averages 350 hours per year carrying executives of the company and also in flying customers to and from the plant to observe their machinery in operation before shipment. The plane is operated from the company's own field at Seneca Falls.

According to chief pilot J. T. Morris, it is difficult to compare a company plane with the airlines, dollar for dollar, and it is only when the executives' time is considered that the high cost of operating a company plane can be justified. In this respect the company very definitely feels that the business airplane is worth the expense, particularly when executives must visit places which are off the beaten track and in the elimination of having to adhere to airline schedules.

SINCE Marinette, Wisc., home base of the Ansul Chemical Co., is served by only one feeder airline, the company-owned Twin Bonanza is often used to fly personnel to and from Chicago in order to take advantage of more frequent airline connections. To its basic mission of transporting executives it also adds the bringing of customers and consultants to the plant; and, for business or pleasure, welcomes aboard any employee going in the plane's direction, when space is available. Most trips are within a radius of 350 miles, but since the twin Bonanza was purchased about a year ago, an average of about two trips per month are made to the east coast.

Operating from a landing area adjacent to the plant, the Bonanza normally logs around 800 hours annually. In total, company planes, of which there have been three since the original purchase, have logged about 4,600 hours including 200 hours on rented aircraft.

The company originally operated a single-engine Bonanza. This was burned in a hangar fire three months after delivery and was replaced by another just like it which was operated for six years until replaced by the twin.

WITH the two plants of Dixie Aluminum Corporation separated by some 350 miles, the company's Cessna 310 has proven its worth in inter-plant transportation of personnel. Producers of aluminum extrusions and tubes, the company's general offices, extrusion, casting and fabrication divisions are located in Rome, Ga., while the tube division is in Hattiesburg, Miss. There is only one commercial airline flight a day serving Rome and two a day serving Hattiesburg. With the interline transfer and layover in Atlanta, the best possible airline time between the two plants is about six hours. Surface transportation is 11 hours at best. The "Dixie Miss III" makes the flight in 1:45, with departure time at the convenience of company personnel.

The plane is also used for sales personnel in calling on accounts which are spread from the farthermost northern states to the southern tip of Florida. Customers and prospective customers can be flown to the plant to look over the operation, spend a day in the plant and be back home again by evening.

The "Dixie Miss" is hangared and serviced at Rome Flying Service, Russell Field. Fully instrumented, it is always on call at the convenience of the personnel.

RMC

WHEN a new plant was built some 130 miles from Radio Materials Corporation's two Chicago facilities, a serious administrative dislocation problem was met by addition of a three-place Bell 47H-1 helicopter to the existing fixed-wing company plane, a twin engine Apache. While the fixed-wing craft had helped reduce travel time between plants, RMC was faced with spending more time traveling by car between airports and plants than was required to fly between the two cities in which the plants are located—Attica, Ind., and Chicago.

Taking off from RMC's rooftop heliport at the home office, the helicopter makes the direct 130 mile door-to-door trip in 90 minutes each way, for a round trip savings of two hours per passenger. Figuring at least one round trip daily, a minimum of eight hours per passenger can be saved every week. This adds up to an annual windfall of more than 800 salvaged working hours.

Capable of operating when even the ducks are walking, the helicopter enables RMC officials to go when business dictates, not the weather, which can cripple flight operations for days in the windy city of Chicago.

Out-of-town customers also benefit from the fast service possible only with the direct-lift craft. Just the possibility of a helicopter trip creates an unexpected sales appeal to customers.

George C. Snyder, with 28 years of flying experience, is the official company helicopter pilot, although both board chairman Joseph F. Riley and president

(Continued on page 50)

The author at his desk in the New York office of Powers & George.

THE HEAD OF AMERICA'S FIRST AIRCRAFT BROKERAGE CONCERN REVIEWS THE GROWTH OF HIS COMPANY SINCE ITS INCEPTION TEN YEARS AGO.

AIRCRAFT BROKERAGE

By W. HAYWARD POWERS, JR.
President, Powers & George Co.

SCARCELY more than a decade ago the great war had ended and civil aviation was captivated in an ambitious dream. Airlines were expanding into true transportation systems with great four-engine transports. Lightplane manufacturers were out with many improved two- and four-place models. Shops were converting DC-3's and Lodestars into flying offices for great corporations. Veterans thought they had a decided break in buying BT-13's, PT-19's and AT-6's from the government at about ten per cent of original cost. Aviation's face was smiling.

Looking back, it is hard to understand how and why so many were misled by the idea that general aviation was to be the beneficiary of a miracle. However, those close to aviation had become accustomed to phenomenal developments during the war. "Old Timers" who had scraped along for many years awaiting public acceptance of the airplane, seeing signs of increasing interest, believed each other's optimistic advertising.

Yet even by the beginning of 1947 some doubt began to creep in. Taylorcraft suspended production. Commonwealth, which had merged with Columbia, went out of business after building several hundred Skyrangers. Many widely advertised airplanes were shelved, or scarcely moving, such as the Culver, Fairchild 24, Funk B, Johnson Rocket, North American Ensign, and the Trimmer Amphibian. Grumman decided not to produce two excellent aircraft already flying. Numerous helicopter designs were scrapped.

New aircraft shows, which had been held in grandeur comparing with our national automobile shows, were discontinued owing to poor sales. Air-minded companies found they could not teach sales personnel to fly safely in a few hours, as advertisements had hinted. Ex-G.I.'s with surplus trainers learned these were impractical, and expensive to maintain and operate. The airlines had the best outlook. While in the red, they were carrying more people faster and farther in more comfort, and were placing orders for additional equipment.

There was a surfeit of used aircraft for sale; well over 3,000 were changing hands each month at gradually falling prices. Many were late models—and this buyers' market was to continue until the Korean War in 1950. Naturally, new airplane sales became fewer and fewer.

On July 15, 1947, our firm, Powers & George, opened as America's first aircraft brokerage concern, to dispose of used airplanes for owners throughout the country. We immediately listed 2,000 aircraft without difficulty and advertised our best offerings monthly in FLYING Magazine. Buyers contacted us at once. We sold hundreds of ships in the next few years from puddle jumpers at $800 up to transports at over $100,000 despite the ever falling market. In addition to our New York office, we soon opened another in Dallas, and finally a third in Los Angeles.

At the end of 1947, Republic discontinued the Seabee amphibian after building more than 100 of them. In May, 1948, Stinson production stopped with 366 ships

unsold. More of these had been produced than any other four-place aircraft. Later that year, Grumman built their last Widgeon amphibian, and shortly thereafter their final Mallard. Already, selection of new airplanes available was narrowing rapidly.

By 1949, the market still had not reached bottom. We continued to sell used aircraft built in '46 and '47 at just over 50 per cent of their new cost. New airplane sales reached record lows. The only bright spot was that heavy twins, DC-3's, Lodestars, and such were being bought more frequently by large corporations, which also found uses for converted bombers. By now it was certain that it would take a real indoctrination effort to build a healthy economy in the general aircraft industry.

With United States entry into the Korean conflict in 1950, two drastic changes took place affecting civil aviation. The first was that by April 1, production had ceased on Aeroncas, Bellancas, Ercoupes, Luscombes, Navions, Swifts and others. Only Beech, Cessna and Piper were left as major producers, with greatly curtailed output. The second change was that heavy two and four engined airplanes such as DC-3's, C-47's, Lodestars, and DC-4's overnight became practically unobtainable. At this time we secured such ships for our clients from foreign countries. One of these, a DC-3, which had been used regularly by prime Minister Winston Churchill, we obtained from England for General Electric.

Through the Korean War to 1954, owing to the lack of new aircraft, prices shot up in the used plane market. The greatest increases were in heavy multi-engined models which were in huge demand by airlines and corporations. DC-3's which we had listed at $20,000 in 1950, sold through numerous owners until they brought over $150,000. We had a $200,000 cash offer refused for a DC-3 that a corporation had bought two years previous for $35,000. Fortunes were made by speculators in such ships. The market could not be satisfied.

Early in 1954, however, the whole aircraft picture changed radically with improved world conditions. The market became more stabilized. While scarcely any of the previous manufacturers returned to civil aircraft production, the few which had continued found increasing sales. Beech improved the Bonanza, Cessna added the 180 to their line. Piper had brought out the Tri-Pacer. Enough heavy Twins became available to meet the demand. There were buyers for most used airplanes at high prices. Optimism appeared again, with better basis than in 1946. The downward trend of eight years had leveled off.

In 1954 civil aviation received its most practical boost in the manufacture of the so-called Light Twins, first introduced the year before. They found immediate acceptance by a great many corporations, and some individuals. Sales of the most popular types have risen rapidly. They include the Aero Commander, Beech Twin Bonanza, Cessna 310 and the Piper Apache. These are continually being improved to fill the need of corporations for high performance ships, able to operate in IFR weather with multi-engine safety, at far lower original, operational, and maintenance costs. Previously there was no such Twin available priced below the heavier Beechcraft D18S at about $90,000 new, and approximately $55,000 used. The capital being invested in these recent airplanes is stabilizing the civil aviation economy. Rapidly expanding sales of our used models, here and abroad, is adding materially to the gross business of Powers and George. The rising demand for them is expected to continue. In addition to the new Twins, recent single engined airplanes on the market include the Cessna 172 and 182, which appeared in 1956; the Cessna 180 amphibian, which fills a great need; the Forney Ercoupe; the Helio Courier with its remarkable short field performance; the four-place Meyers 200; and the Mooney Mark 20. These airplanes, then, Twins and single engined, appearing in a market that long seemed to have given up, have created new interest, with resulting increased sales of new and used aircraft. They kindled a spark that has grown to a small flame.

Our company has always exported used airplanes to a number of countries. A few governments formerly permitted the importing of new ones, but not used aircraft. In 1955, however, a change in conditions produced new markets of great value, increasing sales. The English speaking countries, generally, removed their dollar restrictions, so that citizens could buy both new and used airplanes from the United States. We started exporting to Australia and New Zealand. Canada reduced their duty to ten per cent and our sales rose there.

By 1956 West German citizens and corporations were permitted to own aircraft. Buyers appeared immediately. We also began shipments to France. A few introductory sales were made to customers in Ecuador and Uruguay. By the end of the year we had exported one-third of our total planes sold. The figure had been ten per cent the year before. Thus far in 1957, citizens in Austria, Denmark, Holland, and Sweden have bought through us, and we have flown an Aero Commander to Iran. With our export increasing at the present rate, we should market one-half of our total sales outside of the United States this year. Foreign buyers often prefer older conventional landing gear models, because of their less developed airports. This helps owners of such ships here to dispose of them.

Presently, we are making most shipments to Europe by air freight, which takes less than a day, with very little dismantling necessary. The cost is about the same as crating and delivery by boat, which involves over two weeks. Dozens of single engined airplanes are leaving the country each month in this manner. Aircraft are usually carried by steamship to countries across the Pacific. All of our multi-engined airplanes are flown to Europe under their own power, with auxiliary tanks installed. All single engined aircraft are flown to Central and South America, which provides a considerable saving. Of this great volume of foreign deliveries, we have lost only a single

Aero Commander

Stinson Station Wagon

Cessna 140

Piper Super Cub

Grumman Goose

Cessna 170

Grumman Mallard

Douglas DC-3

Top to bottom: The eight models most in demand on the open market for used aircraft.

airplane, a Seabee, and it was later salvaged by a ship. All aircraft are fully insured for all risks en route.

It being a fact, that the sale of a used aircraft promotes the sale of a new one, the new foreign used plane markets cannot but help our present manufacturers dispose of new ships here, as well as abroad; and may possibly bring back into production some models which have left the field. There are rumors today, true or false, that Bellancas, Navions, Seabees, Swifts, and others are to be built again.

The following facts seem noteworthy in 1957:

The two-place airplane is at its lowest production level, the only ones being built now in any numbers being the Champion and Piper Super Cub. Production of fabric-covered aircraft has largely yielded to metal. Only three fabric models are built presently in any volume, the Champion, Piper Super Cub, and Piper Tri-Pacer. Many older used airplanes such as fabric-winged Cessnas and Stinsons are being metalized.

Conventional gear has been superseded by tricycle gear in almost all new airplanes. An example of this is that Cessna has stopped producing the popular 170 in view of the demand for the tricycle 172.

Training is increasingly done in ships with side-by-side seating and wheel controls. Many are four-place models. This eliminates the transitional training necessary when changing from tandem stick controlled trainers to the more popular wheel type.

The trend has always been to higher horsepower. The Beech Bonanza has gone from 185 to 205 to 225 to 240. Twin Bonanzas from 260 to 295. Navions advanced from 185 to 205 to 260. The Piper Tri-Pacer has proceeded from 125 to 135 to 150. More horsepower is being installed in models no longer built. Bellanca Cruisairs are often stepped up from 150 to 165. Navions delivered as 185's and 205's are advanced to 225's. Stinsons are increased from 165 to 190. Swift 125 engines are being replaced by 145's. There is also more power today in DC-3's, Lockheed Lodestars, and Grumman Widgeons, to mention only a few.

A very important factor is that over the years the aircraft owner has come to realize that he must have a better, more expensive airplane to utilize one at all. Today he willingly pays about 50 per cent more for his new ship, than in 1947, and about 30 per cent more for his used one. He buys better equipment and more radio than formerly. Most aircraft, even very small ones, have omnirange, ADF, or both. However, he travels faster, and farther, and he uses his ship more often.

The new airplane, as formerly, normally depreciates on the market from one-quarter to one-third as soon as it leaves the dealer. The extra equipment in it is worth about one-half of its new cost. Consequently, we usually have 100-hour aircraft of most types to offer at one-fourth to one-third below list prices.

In 1957 financing and insurance rates are lower. Banks are thinking of advancing money for airplane purchases, basing loans on credit risks, rather than on the mortgage value of the aircraft. This would eliminate high cost crash insurance, necessary on mortgaged airplanes, which makes present financing expensive. Lease-purchase plans are available on new and used Beechcrafts, new Cessnas, and new Pipers. It is expected that in the near future such plans will be available on all used aircraft. This would increase sales of these materially.

There are about the same number of civil aircraft in the United States today as there were in 1950. However, as indicated, they are better airplanes, representing a far greater investment.

We find used aircraft to be most expensive in California, and on the east coast from Boston to Wilmington. The best "buys" usually come from the midwest, northwest and deep south. When we show our clients what good offerings are available in these sections, they are often willing to make long trips to pick them up.

Our experience in the late 1940's and early 1950's was that the used aircraft market was most active in the spring. Now, however, most sales are made in the fall from Labor Day until December 1. In this period we dispose of as many ships as during the other nine months. Prices are not generally lower in the fall, but there are more aircraft available, and consequently more bargains show up. The market, still fairly active in the spring, is slow in July and August. December is the worst sales month in the year.

There follows a list of average aircraft prices as of July 1957, based on listings throughout the country, and on recent sales figures. The 1949 quotations are taken from an article that we wrote for the May 1949 issue of FLYING. It is interesting to compare the prices for the same airplanes eight years later, when they are, of course, eight years older. Most of these ships were only one or two years old in 1949. The quotations are for airplanes in good usable condition, with low time on engines either new or since major overhaul, and with the extra equipment usually found in such models:

	May 1949	July 1957
Aero Commander 520		$ 38,500
Aero Commander 560		58,000
Cessna 310 Twin		42,000 to 50,000
DeHavilland Dove		40,000 to 50,000
Douglas DC-3 Airliner	$ 35,000 to 45,000	95,000 to 115,000
Douglas DC-3 Executive	80,000 to 100,000	130,000 to 190,000
Ercoupe 1948	2,000	2,350 to 2,500
Grumman Widgeon (G-44A)	12,000 to 16,000	22,000 to 28,000
Grumman Super Widgeon		40,000
Grumman Goose		65,000
Grumman Mallard	90,000 to 130,000	110,000 to 140,000
Helio Courier		18,000
Lockheed Lodestar (Airliner)	35,000 to 45,000	45,000 to 65,000
Lockheed Lodestar (Executive)	40,000 to 55,000	85,000
Navion 1948	5,000 to 6,500	6,500 to 7,750
Navion 225		8,200
Navion 260		9,000
Piper Super Cub		3,600 to
(90 hp to 150 hp)		5,000
Piper Tri-Pacer 135		4,750
Piper Tri-Pacer 150		6,200 to 8,000
Piper Apache Twin		21,000 to 34,000
Beech Bonanza -35 (1947-1948)	6,500 to 7,500	7,000 to 7,500
Beech Bonanza A-35 (1948-1949)	8,700 to 9,200	8,700 to 9,250
Beech Bonanza B-35 1950		9,000 to 9,750
Beech Bonanza C-35 1951		12,000
Beech Bonanza D-35 1953		13,000
Beech Bonanza E-35 1954		13,750
Beech Bonanza F-35 1955		18,000
Beech Bonanza G-35 1956		20,000
Beech Twin Bonanza		45,000 to 82,000
Beech Twin D18S 1948	30,000 to 45,000	20,000 to 40,000
Bellanca Cruisair	3,400 to 4,000	3,200 to 5,000
Cessna 140A (all metal)		3,300 to 4,000
Cessna 170 (fabric wing)	4,525 up	4,000 to 5,000
Cessna 170A (all metal)		4,500 to 5,250
Cessna 170B		5,500 to 6,250
Cessna 172		7,500
Cessna 180		8,500 to 11,000
Cessna 180 Amphibian		17,000
Cessna 182		14,000
Republic Seabee	2,200 to 2,775	2,800 to 3,800
Stinson 1948	3,900 to 4,500	3,500
Swift 125	1,800 to 3,000	2,400 to 3,200

We have found it a general rule that airplanes will not depreciate below one-

(Continued on page 101)

Little dismantling is necessary when shipping light airplanes to Europe via air freight.

Illustrated by Mel Lazarus

"... his home was pointed out to strangers ..."

The old breed of aviators has practically vanished and nowadays it's getting so

you can't tell a pilot

By MATTHEW J. BRUCCOLI

ONCE UPON A TIME you could recognize a pilot. He *looked* different from the common run of people. Not only physically, though even the physical differences were there, for his face had a leathery look and the goggles he was accustomed to wear had tattooed a pale outline around his steely eyes. He was usually slight of figure because big men did not normally incline to a profession or sport involving a defiance of the Law of Gravity. Indeed, today one looks upon the cockpit of an antique airplane with much the same curiosity that he studies a suit of medieval armor in the museum, and wonders how a man could ever have squeezed himself into it in the olden days.

More than the minor physical marks of the calling, the pilot was apt to suffer from, or rather revel in, a kind of monomania. He talked of nothing else, thought of little else than the sky which had bewitched him.

Wherever he went his fame preceded him, and there was no mistaking him for a lawyer or a butcher or anything but what he was—an Aviator. At least not so long as there were small boys about, to stare with awe at him and conjure up stories about him and, most of all, imagine that they were he!

For one thing, he was of a rather rare breed. Not many of his kind were around back, say, in the early '20s, and the average town greeted the visits of a barnstormer in pretty much the same spirit that it received the circus giant, and there was no mistaking *him* for anything less.

If it happened that a community counted a flyer among its residents it is not unlikely that his home was pointed out to strangers, perhaps with the same possessive pride which Moslem villagers reserve for the town idiot—whom Allah Himself has touched.

All this is not so very long ago, and anyone old enough to remember Harold Lloyd or Charlie Chaplin is surely qualified to luxuriate in the nostalgia of that golden time.

He will not have forgotten the ringing singsong of the neighborhood boys crying out, "The Aer-ee-o-plane! The Aer-ee-o-plane!" at the first distant drone of an approaching ship.

Ye Gads!—but, no, it is not really so long ago!

Wasn't that the signal, though? to precipitate an eruption of boys out of doors and windows and maybe even chimneys, to wave and add their voices to the chant, "The Aer-ee-o-plane! The Aer-ee-o-plane!" until the wonderful thing passed overhead and vanished into the rosy

"... that day I had bought one of those Pilot's Credential Wallets ..."

horizon. As soon tell a boy that Robin Hood deserved to be hanged as try to convince him that ordinary flesh and blood piloted that "aereoplane" through the sky!

Policemen, firemen and trolley-car conductors deserved all the adulation they got from boys, but if you tell me that it was no more than this that we felt for aviators, I say, Jack, don't give me that. We're talking about flyers, those supernatural beings of whom you normally saw only the head, mystic and awesome in sleek leather helmet and all-seeing goggles, at home in an element which was home only to angels.

We had a book in our house in those days called, "The Book of Wonders." Two illustrations in that magnificent tome are vivid in my memory still. One was a depiction of the Caveman defending his family. I stared at that picture for untold, delicious hours—surreptitiously, for the fellow was bare-skinned *nakid* (which is not at all the same thing as *naked*, for we are referring to a boy's age of innocent discovery).

The other picture showed some visionary's conception of an airplane so huge that the pilot's head did not bob out of a cockpit to face the rush of the screaming wind. In fact the pilot sat in a cabin *within* the "aereoplane."

This was, to me, a base kind of pseudo-science. It decapitated the airplane cruelly, as unconscionable a piece of design as though the engineer of a highballing locomotive were to be made to sit comfortably behind a windshield and no longer lean his head out the window of his cab as he roared down the line. As if such a thing could ever be!

For in every real airplane that I ever saw, or dreamed about, there was always that head poking out of the cockpit, helmeted and be-goggled, sometimes looking down over the side at the Rover Boys' world below. And that head was always mine.

It was not until the Spirit of St. Louis reached Paris that I accepted the cabin monoplane concept into my boy's code of aviation ethics, and I must hasten to confess, lest I be surprised by a reader at the local airport, that it is a cabin monoplane which I now fly. But it was with the advent of the cabin, of course, that the Race of the Birdmen, as we knew and cherished it, underwent that transformation not uncommon in zoology, except that a sort of reverse metamorphosis put the free-spirted pilot into a cocoon, instead of releasing him from it.

And so the helmet and the goggles disappeared, to be usurped by motorcyclists, while a new breed of airmen evolved. These may be classified as The-Ones-Whom-You-Would-Least-Expect.

The existence of this type was brought sharply to my awareness during a conversation with my friend Albert B. I knew Albert quite well, I thought. I lunched with him, off and on, over a period of six years and our conversation covered the customary gamut. I was an airline salesman during those years, hence an insufferable expert. Albert was a clerk in the auditing department, and kept ants as a hobby. Can you imagine?

For six years that fellow let me sing my own praises, listened to me attentively and respectfully as I recounted tales of my own derring-do in Cubs, rarely beyond gliding range of the airport. For six years he sat, just a nice mousy sort of fellow who would never dream of catching a train later than his accustomed 6:15 lest he upset his wife's supper schedule.

Well, that day I had bought one of those Pilot's Credential Wallets, you know, with all the windows? and had to show it to Albert, not neglecting to point out my private license so that he might know what such a document looked like, poor fellow.

He examined it with seemly interest and then, commenting on the fact that civilian licenses didn't look at all like the military kind, drew out his own wallet and showed me multi-engine, land and sea, and instrument ratings and—of all thrusts the most unkind—his card of membership to the Caterpillar Club! What an opportunity some artist missed that day to capture the essence of the Classic Oaf!

World War II, of course, produced pilots of every category and in such numbers that one's fame may no longer rest solely on his ability to fly an airplane. The seeker of fame must now *hyphenate* his accomplishment, as it were. For example he may bask in some kind of glory if he becomes known as, say, the world's Fattest pilot, or the world's Tallest, or the Loudest. He might gain some measure of renown as the most stupid pilot in the county, but in that competition he will have to reckon with me and I am too solidly entrenched.

But we digress.

The point is, now, that the (*Continued on page 76*)

"... I didn't dare patronize even some little gray-haired old lady ..."

The "Learn as you travel" plan has added interest to business trips as well as providing

Long legs

FOR MR. SCOTT

By KIRBY CROCKET

REED W. SCOTT of El Paso was perusing a sales map one day in 1955. "The only way to cover that map is by airplane," he skeptically told his boss. "Looks like I'd better learn how to fly."

Little did he dream that by today he would have logged close to 500 hours pilot time. He's the archtype of a new recruitment of airmen—pilots who learn to fly because, without wings, they're hopelessly handicapped.

Scott is Superintendent of Meat Operations for the Food Mart, a grocery chain with 60 stores and supermarkets spotted across Texas and New Mexico, all the way from Dallas to Silver City, from Carrizozo to Pecos. Even as a Texas reckons distance, that's a broad beat for one man to cover.

Gordon Foster, Jr., son of the president of Food Mart was responsible for introducing Scott to the notion of flying. Gordon had talked his father into flying lessons and, when young Foster went out to El Paso's International Airport for his first lesson, Scott gave him a lift in his car. While Foster was flying, Scott wandered into the office of Bill Mueller, General Manager of Southwest Air Rangers. By the time the student was back on the ground, Mueller had persuaded Scott that while flying was great sport for youth, it was an economic necessity for him.

"For your problem, Piper has introduced its 'Learn As You Travel' plan," Mueller told (*Continued on page 84*)

Right: Grand opening of another Food Mart supermarket generates a carnival atmosphere at Las Cruces, N. M. Below: Reed W. Scott, Superintendent of Meat Operations for the Food Mart chain, scans map before take-off.

BUSINESS BRANDS

(Continued from page 43)

Richard Bourgerie hold commercial fixed wing and helicopter ratings.

RMC's Apache continues to see heavy duty for group trips, complemented by the quick plant-to-airport transportation offered by the helicopter.

A VERITABLE workhorse between the various offices of the Partlow Corporation throughout the country, the Twin Beech is considered by this company to have more than paid for itself by saving many hours of executive travel time, as well as being a useful tool for customer service. The Partlow Corporation is a manufacturer of industrial temperature controls of all types and is located in New Hartford, N. Y., a suburb of Utica, where transportation has not always been of the very best.

Mr. Howard W. Partlow, Jr., president of the company, has been a pilot since the early 30's and prior to World War II used his own plane in conjunction with the business.

"WHEN time is money, and time *is* money in our business, a company plane pays for itself in weeks." This is the deep conviction of 33-year-old Peter Flagg, president of C. N. Flagg & Co., Inc., of Meriden, Conn., one of the largest piping contractors in the East, who credits their company airplane as being one of the chief reasons for a six-fold increase in business during the last six years.

The Flagg Company purchased its first plane, a used Cessna 140 in late 1953. It was flown by Mr. Flagg, an ex-Air Force pilot. At the end of a three-month period, this plane was turned in for a Cessna 170; and a year later a Cessna 182 was purchased. A need for a light twin-engined plane was felt, when it was realized that in order to make the operation most efficient instrument flying was necessary. Therefore, this year a five-passenger Model 520 Aero Commander 222-E was added; and John Walker, commercial pilot with an instrument rating and A & E, joined Flagg as co-pilot.

In one 60-day period the Aero Commander was flown 20,000 miles throughout the company's 14-state area of operations. This area had rather inadequate comercial airline connections, so Flagg has set up five branch offices in different states, four of them near an airport to make it easier to fly top supervisory officials and key workers from one office to another in the company plane, in the shortest possible time. An example is Albany, N. Y., where a complete warehouse and equipment center has been set up on the outskirts of the Albany Airport.

OPERATING aircraft since 1934, Socony Mobil and its affiliates now operate a total of 29 aircraft based in New York, Texas, Kansas, Montana, California, Alberta, Saskatchewan, Libya, Venezuela, and Colombia. Including Magnolia Petroleum listed elsewhere in this section, the fleet consists of one Super Ventura, three Twin Beeches, six DC-3's, five Luscombes, three Cessna 195's, one 170, one 180, three Aero Commanders, one Beech Twin Bonanza, two DeHaviland Beaver's, and one Bell 47G helicopter.

Average utilization is approximately 450 hours per year and cost is variable with the location and type of use. Aircraft based in Canada, Venezuela, Colombia and Libya are used for cargo and personnel transportation in connection with the company's producing activities. The Beaver in Libya services geological and exploration parties in the desert. DC-3's based in South America are used about one-half for cargo and one-half for passenger transportation.

The company has prepared its own aircraft operations manual governing general policies and specifying, for instance, pilot qualifications which require an ATR for all aircraft operated IFR. In general all Socony Mobil operations have their own maintenance personnel and everything but major overhaul and modification is done at the local bases.

SINCE delivery of its Beechcraft Super-18 executive airplane in October 1956, Besser Co., Alpena, Mich. has maintained a regular flight operation averaging 60 hours and covering 40,000 passenger miles per month. The company manufactures the Vibrapac, a fully automatic concrete block machine.

Bes-Air, as Besser's aviation department is called, is used largely to supply fast, safe and comfortable transportation for customers from Willow Run near Detroit, the closest major airport, 250 miles distant. Formerly this journey took from six to eight hours by bus or car. The Beechcraft makes the trip in slightly over an hour. An important additional benefit to Besser's clientele has developed in several instances when urgently needed repair parts have been flown to Willow Run for trans-shipment by air freight to distant plants.

Not only has the aircraft been invaluable in customer relations, but it provides Besser executives with quick and easy access to faraway points. Bes-Air has also been used as a good will promotion with many of the customers who have never before visited that section of the country. They have been taken on trips north along Lake Huron shores to the Straits of Mackinac and, on occasions as far as the famous St. Mary River to the world's busiest waterway, the Soo Locks.

A booklet describing the interesting points over which they are flown is given to them at the beginning of the flight. Each passenger is also presented with the Bes-Air booklet which describes in detail the salient features of the company airplane, its operation, usage, safety features, explains flying weather and offers suggestions how to relax, be comfortable and enjoy the flight. Together, the two pamphlets represent excellent promotional material for the use of corporate aircraft by pointing up not only the value of the airplane as a tool of business, but the safety and beauty of flight.

The Bes-Air plane is housed in a concrete masonry hangar which also contains administrative office space, storage room and a small repair shop.

BORN of wartime necessity, the Hercules Powder Company's air operation started when the War Department suggested the company might overcome wartime airline priorities and erratic flight schedules by purchasing their own plane. Since this constituted virtually top-priority clearance for an aircraft purchase, a Twin Beech was put into operation in December of 1944 carrying personnel on urgent business between its five government ordnance plants widely scattered across the nation.

By 1945 a Lodestar had replaced the Twin Beech and, late in 1946, as the company took a hard look at time saved in moving key men out and back again to trouble spots, a second Lodestar was purchased. In 1950, bowing to the need for greater passenger capacity, the Lodestars were replaced by DC-3's.

The company now employs five pilots each with the background and training equal to that required by commercial airlines. Hercules pilots must return to school every six months for a refresher course, up-grading on new equipment and techniques, and an examination to check pilot efficiency.

During the past year, the two DC-3's flew a total of 200,483 miles, 1,113 hours, and 1,060,172 passenger miles.

Dairypak

LARGE producers of dairy and frozen food containers with headquarters in Cleveland, O., Dairypak operates plants and subsidiaries throughout Michigan, Ohio, Iowa, Georgia and Texas. Currently the company has been shipping billions of milk cartons to customers.

Entering the field of corporate flying in 1952, it presently owns a fleet of three airplanes consisting of a Beech 18S and two Piper Apaches. All aircraft are fully instrumented for blind flying and, in addition, the Beechcraft is fitted with DME, while one of the Apaches is equipped with automatic pilot.

In the last five years, the Dairypak fleet has flown a combined total of 6,805 hours, representing over one million air miles, and carried in the neighborhood of 7,500 passengers. Prime purpose of the airplanes is to give customers faster and more efficient service. Besides executives, production managers and salesmen, commercial artists are often flown to confer with customers on specific carton designs. Company personnel are also flown to training sessions and meetings.

Dairypak aviation department is headed by Chief Pilot Philip Van Treuren under whom are three pilots and one A & E mechanic. At the last Annual Aviation Maintenance Forum, in Reading, Pa., Dairypak's Beechcraft was awarded "Best in its Class" trophy with a citation "In recognition of high standards of excellence in industrial executive aircraft."

Burlington

WITH 30 plants scattered within a 90-mile radius of its main offices at Greensboro, N. C., Burlington Industries, the nation's biggest textile producers, are finding that their Bell 47-J helicopter, complete with night flying equipment, is a natural solution for the transportation problems of its top 25 officers. On one flight alone—a six hour trip by ground transportation between Greensboro and Asheville—the Ranger clips four hours and 40 minutes off the clock. In every case the time saved varies from 20 minutes to five hours.

Decision to buy the helicopter was made by board chairman and president, Spencer Love, only after its time-saving abilities were evident through a desk-to-desk travel time study. In operation the helicopter has proved the dollar and cents savings are most significant when the salvaged working hours of high-salaried executives are taken into consideration.

Currently the company helicopter operates from ground heliports conveniently located near the front doors of the various plants. Future plans include a roof-top heliport on the two-story main office building in downtown Greensboro.

The 'copter flys about 30 hours a month at present, according to chief pilot Shelby Maxwell, a veteran fixed-wing pilot of 12,000 hours time, who completed the Bell factory training course along with pilot Bill Lewis and mechanic Bill Sharp. In 1956, Maxwell received an NBAA award for the second highest number of accident-free hours flown of all business aircraft pilots.

Besides the new Bell, Burlington owns and operates six other aircraft, ranging from a DC-3 to a twin Apache.

Tidy house Products Company

WITH headquarters in Shenandoah, Ia., Tidy House Products Company operates manufacturing plants in Omaha, Neb., and Malta, O. Its products, Perfex, Dexol, GlossTex, and Shina Dish, are distributed in an area from Pennsylvania to Colorado and from Oklahoma to the Canadian border. Within this area the company's sales force is organized into eight districts with District Sales Managers in Omaha, Kansas City, Chicago, Cincinnati, Detroit, Pittsburgh, St. Louis, and Minneapolis.

To achieve the mobility demanded by this type of operation, Tidy House purchased its first plane, a Bellanca, in 1947. This was replaced by a Cessna 195 in 1950 and in 1954, because of company growth and increased travel requirements, a second plane, an Aero Commander, was added. Presently the company operates the Commander and a Beechcraft Bonanza purchased in 1955.

Tidy House feels that a saving of time is the primary advantage gained from operating its own planes. Since executives schedule their own flight times, the airport waiting associated with commercial flights is eliminated and in many cases actual air time is reduced because of the direct route flown. Tighter scheduling also enables executives to consult with field personnel and to study market conditions in several cities in one swing. As an example, not long ago six employees of the home office marketing division held eight all-day district sales meetings in eight days by using the Aero Commander. In addition, flights can be made to smaller cities and towns which possess airports but which do not have scheduled commercial service.

Although president Cy Rapp, advertising manager Barney Corson, and sales training director Leo Lindamood are all qualified pilots, the extent to which the planes have been used has made it

(Continued on page 58)

Powered by two 180 hp Lycoming engines, the Beechcraft Travel Air has a cruising speed of 200 mph at 7,500 feet.

FLYING CHECK PILOT

REPORT ON THE Beechcraft Travel Air

By NORMAN JACOBSHAGEN

EVERY VETERAN PILOT remembers with a thrill of nostalgic delight a ship that long ago took the air world by storm—the Travel Air. A dream to fly, a work horse for utility and a brilliant performer, it was a true aristocrat of its day.

Beech has given us many fine aircraft over the intervening years and now, like a family proud of an exceptionally noted pioneer in its lineage, has named its latest brain child for the distinguished old trail blazer, the Travel Air.

Perhaps somewhere in its mission around the world, the newcomer will cross runways with its ancestor, for there must be ancient ones still at work—and that will be a moment for the pilots concerned. We wish we could be there to hear the exchange of hangar flying that will ensue.

Next best to that is the fact that, as one of FLYING'S check pilots, I got to fly the new four-place twin-engine beauty when the plane's approved type certificate was still only ten days old, and test equipment remained in place for last minute double checks Beech wanted to run. The program had been fighting a long siege of unfavorable test weather and even the vice president in charge of sales had not yet had opportunity to ride his new product. Under these circumstances we owe Beech—Gomer Jones and his experimental group in particular—

a debt of gratitude for inviting us so promptly to evaluate this new airplane.

At the experimental flight hangar, I was introduced to Jones, Model 95 Project Engineer, who was going along to answer questions which might come up. Steve Tuttle, experimental pilot, who had brought the Travel Air along from its initial sortie, was to give me the indoctrination. James Yarnell, Chief Photographer, was our fourth crewman. The four of us plus test equipment and full tanks added up to approximate design gross weight, which is 4,000 pounds.

But before take-off, a brief word on the development of this modern Travel Air: It is an amazing story in terms of time for the design and development of a new aircraft. When the "go ahead" came from the front office, there existed only a few three-view drawings and some ideas on the project; yet in exactly five weeks, the prototype took to the air. It was almost as if the airplane had been built "off-the-shelf." And indeed, as Gomer Jones explained, parts which came from the Model 35, 45 and 18, do seem to make this literally true. Actually, 35 per cent of all parts in the Travel Air are identical to parts of other airplanes Beech builds. This use of parts already in production has two benefits. First, over 35 per cent of the airplane has been thoroughly tested in hundreds of thousands of flying hours. Second, the cost of parts already in production is less than it would have been had new tooling been necessary for the entire airplane. Perhaps this is the reason factory officials have declared the price will be held under $50,000 . . . to be exact, $49,500.

As you look at the new Travel Air, a Bonanza heritage is strongly evident. And well it should be for the fuselage from windshield to just ahead of the tail is exactly the same. The empennage has been changed from the familiar "V" to conventional horizontal and vertical stabilizers. In spite of this new tail and the slightly elongated nose, the overall fuselage length is only two inches more than the Bonanza's 25 feet, 2 inches.

The wing, from just inside the wingtip to the fuselage is, contour-wise, the same as the Bonanza but new wing tips increase the span to 32 feet, 10 inches. These tips are a recent design—lengthened so that they extend some 20 inches beyond the outboard end of the aileron. An over-simplified explanation of this is that, at low speeds and in stalls, air normally tends to flow away from the ailerons, detracting from effectiveness. With this new tip, the airflow is directed over the aileron, thus retaining complete control even in stalls. A graphic demonstration of this was given me during the indoctrination flight.

The fuselage, wings and other components from the Bonanza have been beefed up to give more than adequate strength for the additional weight and performance of the Travel Air. Structural tests were carried to load factors of 115 per cent of CAA strength requirements in every category, without breaking up the test airplane. Additional tests at even higher load factors are planned for the immediate future.

Entrance to the Travel Air is exactly similar to boarding a Bonanza. It felt so familiar that I half expected to see the same instrument panel. Here, however, has been a complete change. The panel is larger vertically—big enough to accommodate two groups of complete flight instruments and dual radio equipment. This would include, if one wants everything, two glide slopes, four omnis, four transmitters, two marker beacons, two ADFs and two communication receivers. Radio equipment is stored in the capacious nose which also houses the battery and heater. This area is easily available for servicing through a large door in the side of the nose for which no ladders or stands are necessary since the compartment is about waist high from ground level.

The instrument panel was not finalized, so we'll not describe it other than to say that the center console on which is the prop control, throttles and mixture controls, takes up little more room than on the single engine Bonanza. The cabin interior includes individually ad-

Steve Tuttle, Beechcraft Experimental Pilot, demonstrates the ease of single engine landings in the new Travel Air.

Gomer Jones, Chief Project Engineer at Beechcraft, and Steve Tuttle, Experimental Pilot, discuss the many new features of the Travel Air.

justable front seats, retractable center arm rests and all such accouterments as spell quality.

Starting the two 180 hp Lycomings is a simple procedure—mixture controls off, throttles slightly open, master switch on, left mag on because it is the only one with impulse, press the starter button. When the engine fires, move mixture controls full rich and turn on the right mag. The engines start about the same regardless of whether they are hot or cold. Tuttle told me that, including extreme cold weather, he had never needed to use the primer or the electric fuel boosts. The Travel Air does not use augmentors in the exhaust system. Although they are held in high esteem for low speed cooling, they threw too much noise into the cabin and were abandoned in favor of noise reduction. This, of course, makes cowl flaps electrically operated for good low speed cooling.

The test pilot suggested that he give me a demonstration of the airplane, after which we would change places. This suited me—but little did I foresee what was in store. For take-off, he ran the flaps down to 20 degrees. With advance of throttles, it became quickly evident that the airplane has good acceleration. At 70 mph indicated, Tuttle hauled back on the wheel and sucked the Travel Air off the ground only 12 seconds after we started rolling. We were in a very nose high and uncomfortable position. I expected him to drop the nose to pick up speed. Instead he held it high and kept going. Even in this attitude the airspeed was building and at 120 mph, about 500 feet up, the pilot started a steep turn to the left. This was not alarming, but when he cut the left engine and feathered the prop, I began to wonder what was going on.

Tuttle continued the steep turn. The airspeed dropped slowly to 110 mph and the indicator showed 100 fpm climb. This pilot appeared able to hold the airplane comfortably without changing the trim tabs. Upon completing a 360-degree turn, he pulled the nose up and, with the left engine still feathered, approached an indicated airspeed of 80 mph. The plane began to buffet, and I thought we were in a stall. The test pilot later explained that this was a preliminary buffet. The actual stall occurs at 75 mph where the plane pitches down. In this precarious position, Tuttle rocked the wings with the ailerons to prove that he still had adequate control. I don't recommend this as standard operating procedure but it was a phenomenal demonstration of the high limits of performance of this airplane.

According to the placard in the cockpit, the minimum single engine control speed is 84 mph. This does not necessarily mean that you can continue take-off after an engine failure while still rolling on the ground. Nor does it mean that if you got into the air at 84 mph you could keep climbing on one engine. That depends on a number of variables. It does mean that should you have an engine failure in any situation, you could control the attitude of the airplane. It gave me the indication that here was a "twin" of exceptionally forgiving character.

One word of warning. Don't expect this airplane, good as it is, to fly at low speed on one engine at full power without effort. I pulled one throttle at cruising speed and let the prop windmill. Very little effort was needed at first to hold heading but as we slowed, control displacement to maintain a heading grew progressively greater as did the effort necessary to hold the controls. If you had a sudden and complete engine failure at 84 mph under a full power condition, I suspect the sudden unbalanced condition would cause considerable yaw. Other than being startling, however, it should cause no trouble, for as I've said, you can hold it even at this low speed.

Later, when I made a few take-offs from the left side, I used a more normal technique. At 60 mph, I began to apply gently back pressure on the elevators. I could feel the nose begin to lighten and at 80 mph the airplane flew smoothly off. At this point, should there have been an engine failure, I could have kept the plane level and straight even though we would have settled back on the runway. By the time I had the gear up, the airspeed was at 100 which engineering data shows is the best single engine climb. This, incidentally, is indicated on the airspeed with a blue line so a pilot need not remember under stress of emergency. Time from breaking ground at 80 to 100 mph did not exceed four to six seconds. This means that the period of critical hazard from an engine failure on take-off is extremely short. On normal hard-surfaced airports one would almost always have enough runway left on which to land; or speed would be high enough to keep going. On short sod fields where maximum take-offs must be executed, the period of critical hazard would naturally be longer.

Although a handbook is not yet available on the Travel Air, the engineering department furnished some preliminary information on performance. Take-off distance required to climb 50 feet under best (*Continued on page 72*)

Cockpit of Beechcraft Travel Air is big enough to accommodate two groups of complete flight instruments and dual radio equipment.

The Chief Executive's Helicopter

NOW THAT THE Chief Executive has shown the way to save time and facilitate convenience for all to whom these values are important, we can reasonably expect others to follow. Aviation precedent set by the White House is precedent indeed! Probably the fact that the President is a licensed pilot plays no small part in his utilization of general aircraft. The chopper is a four-place Bell 47-J Ranger.

WHAT THE MILITARY AIRPLANE IS TO THE BUSINESS OF SECURITY,

THE COMPANY AIRPLANE IS TO THE SECURITY OF BUSINESS

A physician evaluates his own experience as a pilot with the hope that it may prove helpful to others in solving the question

TO FLY OR NOT TO FLY?

By

JAMES Y. BRADFIELD, M.D.

AFTER ENDURING a 20-year itch to fly, the opportunity came six years ago and, in due course, I was a licensed private pilot! Then, two years ago, mostly to see whether I could measure up, I passed the more rigorous examinations for a commercial license. To date, I've acquired some 500 hours in six different types of airplanes, and have cruised the U.S.A. from Dallas to Atlantic City, Chicago, Denver, and to numerous points between. Flying has been inexpensive, useful to my practice of internal medicine, and a heck of a lot of fun!

About 800 M.D.'s are licensed, active and enthusiastic pilots. Approximately one-third have joined the Flying Physicians Association. Obviously, therefore, doctors are showing a keen interest in this burgeoning business.

Maybe, right now, some confrere is devoting thought to the feasibility and advisability of learning to fly, with a view to ultimately owning and operating a personal ship.

Well, I'm not exactly an old-timer in this regard but I have participated enough to learn a few pertinent angles. Some of my ideas, not yet completely prejudiced, I hope, may be of help or interest.

To begin with, let's see how my flying worked out on a typical trip. The figures on this recent one, Dallas-to-Denver and return, are still fresh.

An M.D. friend and I departed Dallas at 5.15 a.m., set a heading almost straight to Denver, stopped en route at Dalhart, Tex., for coffee and landed at Stapleton Field, Denver, at 11:20 a.m. We had checked into our downtown hotel by 12:00 noon. Weather was CAVU (clear and visibility unlimited) all the way, and the air smooth except for a few mild bumps in thermal currents over the rough terrain in south Colorado.

Highway mileage between Dallas and Denver is 804. Road mileage usually amounts to ten to fifteen per cent more than equivalent airline distance which, Denver-to-Dallas, is 700 miles.

The medical meeting we attended in Denver lasted three days. Meanwhile, a big mass of cool air swirled out of the Canadian Rockies and swept through Denver the day prior to our departure on the return leg. The leading edges of this mass of relatively heavy cool air was overridden by warmer, moisture-laden air moving northward from the Gulf of Mexico. Such a situation begets heavy clouds and intermittent rain, and we were so greeted the morning we left Denver. "Feeling out" weather conditions within our limits of navigability, we detoured to Garden City, Kan., thence south to Wichita Falls, Tex., and southeast to Dallas. This route traversed 780 miles, and entailed 6:40 hours flying time. A full day's work, that!

Our total cost of round-trip air transportation, including a standard flight-hour allowance for routine plane maintenance, was $65.47 or about four and one-half cents per

The author cleans dipstick prior to checking oil during a routine pre-flight check on his Piper Tri-Pacer.

mile. This trip points up some of the major advantages and shortcomings of private flying. I'd like to elaborate on some of these, as I see them.

The assets of speed, economy of time, and freedom from the ordeal of highway and in-town automobile traffic are obvious and undebatable. It is fatiguing and hazardous to drive from Dallas to Denver in one day, while the fastest train service available requires 18 hours. Of course, auto travel to and from the airport, the routine pre-flight check of your plane, and arrangement for the care of the ship at destination, all take time. The technicalities of getting off in an airplane are ordinarily more tedious than in a car. Also, one may anticipate occasional unpredictable delays due to adverse weather, or mechanical problems of the plane. Nevertheless, speed remains one of the most substantial assets.

The greatest disadvantage of private flying stems from limitations imposed by the environment of flight. As a science, meteorology seems almost as inexact as medicine! To a greater extent than commercial airlines and military aircraft, the average private pilot is at the mercy of weather vicissitudes. One simply cannot point to a given date, even a week ahead, and state with certainty that he is going somewhere or other. If ceilings, visibilities, even winds, do not lie within certain limits of feasibility en route, the private pilot in the light single-engine airplane must wait until they do. Otherwise, he's not only in violation of law but of horse sense.

A consideration to bear in mind is that some areas of the U.S.A. boast of much better "lightplane weather" than others. Here in Texas, and in large regions of the south and southwest, weather favors private aviation. There are exceptions, though, and you can depend on encountering them. Recently I flew to New Orleans one clear Saturday morning, planning to return to Dallas next day. Unhappily, and contrary to the Weather Bureau's forecast, a "low," with hard rain, low ceilings and poor visibilities, moved overnight into the Gulf Coast area of Louisiana. Nothing left but to return to Dallas Sunday night via commercial airliner, and come back to New Orleans later for my plane. Troublesome and inconvenient, yes, and "economically inefficient," likewise. But the ball will bounce that way, occasionally, in the private flying business.

I should mention another aspect of aviation weather and its effect on the pilot. Now and then one encounters conditions which, although not preclusive of safe flight, make piloting tedious work—prolonged flight in turbulence, under marginal ceilings and visibilities, or skirting a belt of thunderstorms.

The term, "flight environment" includes another limitation which the average private pilot must consider—night flying. Admittedly a controversial subject, consensus of opinion appears to hold that the pilot of a single-engine, light airplane should not routinely fly at night, especially if he is not qualified and equipped to fly "on instruments."

In many instances, navigation is more difficult; it is easier to blunder into bad (*Continued on page 94*)

BUSINESS BRANDS

(Continued from page 51)

necessary for the company to keep a full-time pilot, Kenneth Moles, on the payroll since 1954. Not quite three years old, the Commander has flown a total of 218,750 miles since its purchase and the Bonanza has logged 93,000 miles in its two years of use.

RED Devil Tools of Union, N. J., world's largest manufacturer of painters' and glaziers' tools, has operated a company plane for the past ten years. The latest, a Twin Beech D18-S, has become practically indispensable in the company's transportation picture. Not only has it paid its way in the normal course of company activity—carrying key personnel to and from the Chicago or Los Angeles branch offices, transporting salesmen from various points to sales meetings and trade shows—but on several occasions it has "saved the day" in picking up essential parts, the lack of which could have held up important production runs.

THREE years of experience with corporate flying at the Gardner-Denver Company of Quincy, Ill., show a picture of continued growth, usage and management acceptance. A manufacturer of industrial, construction, petroleum and mining equipment, the company today operates a Beechcraft 18-E and two Apaches and employs four pilots, three in Quincy and one at the Keller Tool Division in Grand Haven, Mich.

Original purpose of the company's entry into corporate flying in 1954 was to provide a link between Quincy and good commercial airline service, as connections through Quincy were limited. However, it was soon found the planes and pilots were capable of providing complete, fast and efficient transportation throughout the midwest. Last year the planes totaled 1,642 hours and 265,760 miles. This year indicates 3,000 hours and 500,000 miles.

Western Canada, 2,300 miles from Quincy, has been the farthest destination for a Gardner-Denver plane. The Apaches average 350 miles one way per trip, while the Beechcraft logs an average of 450 miles. Planes are most often used by administrative, engineering, sales or service personnel and customers are often picked up at terminal points as a courtesy service. Sometimes critical production parts are delivered to meet an emergency.

With no scheduling problems, at least 25 per cent of executive travel time is eliminated, especially since only 15 per cent of the cities visited are served by first class airports. Gardner-Denver is highly pleased with its experience in corporate aviation. They feel that the saving of time, plus the factors of comfort, privacy and convenience, make the operation efficient and economical.

ENTHUSIASTIC supporters of corporate aircraft ownership, since the shortage of airline space during WW II prompted the purchase of the company's first aircraft, Ebco Manufacturing Co. of Columbus, O., has progressed from ownership of a number of single-engine aircraft to its current twin-engined Super 18 Beech.

Manufacturers of refrigeration appliances, Ebco utilizes its plane not only to carry executives to various parts of the country but to bring its Oasis and Kelvinator distributors to Columbus.

Louis P. Buena, 42-year-old vice president, who has over 3,000 hours of civilian flying, is Ebco's most ardent advocate of corporate ownership and is its regular pilot. When he is not available, Bill Fauth, an airline-transport pilot based at Fort Columbus takes his place.

The ship looks like any other brand new Super 18 but it is equipped with over $30,000 of the best navigation and communications systems available. Included in this is a Collins 101 Navigation system; a 50-watt Wilcox transmitter (180 channels, with receiver); a Lear 36-channel transceiver accompanying it; two Collins Omni for basic navigation, combined with the 101; a Collins three-light marker and an ARC, ADF remote locator.

IN EFFECT, Sprague Electric Co. of North Adams, Mass., the world's largest manufacturer of capacitors, provides those members of its management who must travel in their daily business its own airline "feeder" service to major air and rail terminals and direct flights in company planes to New York, Buffalo, Boston, Philadelphia and Washington, D. C.

As a leader in the use of airplanes for business, Sprague has been operating its own aircraft since the late 1920's. But it wasn't until the purchase in 1951 of a Navion and the hiring of a pilot to fly it that Sprague's Flight Department was formally established. Today, the all-Beechcraft fleet of three all-weather equipped C-50 Twin Bonanzas and a B-35 single-engine Bonanza are manned by six experienced pilots.

Company aircraft operations are under the direction of Robert C. Sprague, director of Employe and Community relations for the company. In order to consolidate its operations, a Twin Beech E-18S was recently traded for a third C-50. This assures that all Sprague pilots will be flying identical aircraft, identically equipped.

Of its twelve plants, the company is able to service all but Wisconsin, California, Puerto Rico and Milan, Italy directly with its own fleet of four aircraft.

Sears

THE Sears fleet consists of a DC-3 and a D-18S based at Chicago Midway Airport, a DC-3 in Atlanta, a Lodestar at Dallas, and a DC-3 in Los Angeles. The planes are used for executive transportation in the United States, Canada, Mexico, and South America.

SAWHILL Tubular Products of Sharon, Pa., have owned and operated company aircraft for the last nine years. The first plane, a twin-engine Beechcraft was flown for four years when the present DC-3 was purchased. The airplane is used for executive transportation and to coordinate the activities of Sawhill's national sales force. Customers are flown to Sharon for conferences and plant visits. The DC-3 is scheduled for maximum utilization by combining trips into various districts and territories; its average use is about 60 hours per month.

STARTING with a single-engined four-place Navion in 1947, Leonard Refineries, Inc., at Alma, Mich., in the lower peninsula, has proved to its own satisfaction that the airplane has become one of the most important tools in American business.

Refiners and marketers of petroleum and petroleum chemicals the company's first plane was for use of the sales staff to visit dealers and distributors in the state. Then the president, Reid Brazell, found it a time-saver in meeting his commitments. And there was the time when a drive gear on a diesel engine that operates the plant broke down; a quick trip to New York and back on the same day saved days of expensive shutdown. This Navion in two years traveled over 320,000 miles on company business.

To get more people more places, a Twin Beech replaced the Navion in 1951. Still the corporation grew and two Bonanzas found their way into Leonard Refineries private hangar. Today the company operates one Twin Beech and three Bonanzas, to any place in the U. S. and Canada. Transporting 165 passengers a month, each of Leonard's aircraft is in the air about 40 hours per month. Since 1947 the planes have flown 1,412,500 miles safely, comfortably and on schedule.

AIR operations of Magnolia Petroleum Company range widely in proportion to the big share of the U. S. in which it has personnel. One of the Socony Mobil companies, Magnolia uses a total of 14 aircraft in transporting personnel and patrolling pipe lines in its 18-state territory. Many flights reach remote points not served by commercial facilities. The air fleet includes a DC-3, a Twin Beech, three Aero Commanders and one Cessna 195—all employed for moving personnel. Its pipe line patrol craft include five Luscombes and one Cessna 170. All are based at Love Field, Dallas, in facilities operated by Southwest Airmotive.

At Morgan City, La., Magnolia maintains a float plane for servicing offshore installations in the Gulf of Mexico, and a small Bell helicopter does a similar job for an offshore platform on the southeast Texas coast.

In 1956 the Magnolia aviation department accumulated 9,000 air hours, the bulk of it in incessant pipe line patrol. The company does not consider any of its aircraft as "executive." The planes are available to any department and are assigned if a need exists.

FLYING company personnel between seven plant cities and to distributor locations in a 25-state market area is the primary function of Falstaff Brewing Corporation's executive DC-3. Although the plane is maintained primarily for executive travel, practically every department of the company has made use of it as the occasion required.

Falstaff president Joseph Griesedieck believes the executive aircraft more than pays its own way in speed of travel, convenience and flexibility of schedule combined with availability on short notice when a group of executives or technicians must visit a plant or make an extended tour through areas not served by scheduled airlines.

But the DC-3 is used for other purposes as well. Last year it became a flying laboratory to transport a refrigerated load of Falstaff's pure yeast culture from St. Louis to a newly-acquired plant at Galveston, Tex., so that brewing of an identical product could begin at that location.

The plane averages about 650 hours of flying time a year and, at a cruising speed of 180 miles per hour, covers more than 100,000 miles annually. Jato pods were installed recently as an added safety feature for emergency take-offs. The 14-passenger "flying office" is piloted by B. N. Haddock with M. C. Willett as co-pilot.

A PIONEER in the development of aviation fuels and lubricants, The Texas Co., is also a pioneer in the use of aircraft in its own far-flung operation. When Texaco organized its Aviation Sales Division, Frank Hawks, the famous speed pilot, became Division Superintendent. He joined the company on December 5, 1927, and ten days later Texaco bought its first airplane, a tri-motor Ford.

For more than two decades, the company's Domestic Aviation Division has been using planes to call on its customers. Today, the Division has eight small planes, one Twin-Beech D-18, one Spartan 7-W, and six Cessna 310's based at Amityville, N. Y.; Teterboro, N. J.; Chicago, Ill.; Denver, Colo.; Houston, Tex.; and Los Angeles, Calif.

In addition to using airplanes for its Aviation Sales Division Texaco also uses them in its production activities. The Domestic Production Division has three Grumman Mallards, based at Houma, La. The Texas Petroleum Co., a wholly-owned subsidiary, has a Douglas C-47, and a Convair PBY-5A based in Bogota, Colombia, and another PBY-5A which serves as a supply ship in Peru. This plane flies cargo and passengers from coastal Peru over the Andes to an exploration camp on the Maranon River.

★ ★ ★

The DARE dual omni installation in the Bonanza. Left set is shock mounted 22-channel communication/omni/localizer unit. At right is the remote control head for the communication/omni unit which is mounted aft of the rear seat (see opposite page).

The Dayton Aviation Radio and Equipment Corporation's Beechcraft Bonanza completely outfitted with DARE's equipment.

FLYING CHECK PILOT

REPORT ON

DARE

EQUIPMENT

A YOUNG COMPANY IN THE VAST NEW FIELD OF ELECTRONICS FOR BUSINESS AIRCRAFT GROWS WITH THE INDUSTRY

By TED DUROSKO

WHEN A PILOT slides into the front seat of Dayton Aviation Radio and Equipment Corporation's Bonanza, he usually comments on the uncluttered radio installation. It is complete with DARE's own design of dual omni/localizer, glide slope, marker beacon, and a 360-channel VHF transceiver; yet the arrangement is readily functional. A visiting pilot can quickly orient himself.

This was true in my case when sales manager, Elliott Polansky, consented to my request for a flight check of the company's navigational and communication equipment.

On the left side of the instrument panel is the shock-mounted direct control unit which includes a 22-channel VHF transmitter with a 9 MC. spread and 3 to 4 watt output, a tuned RF receiver which has full coverage of 108 to 128 MC., and serves an omni/localizer function. Above the receiver is the omni indicator with glide slope presentation, and below the receiver are located the back-lighted controls for the glide slope receiver and the 360-channel transceiver.

Across the panel on the right is the remote control head

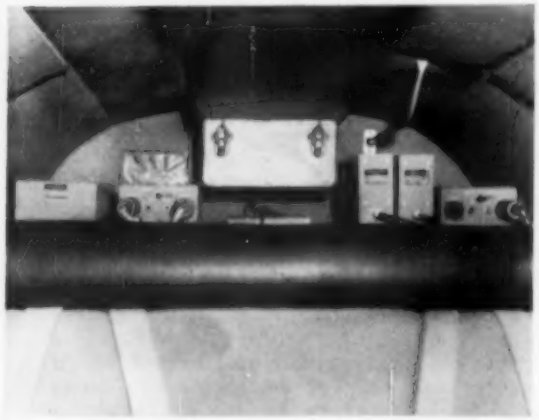
for the second communication/omni/localizer receiver. Directly above it is the omni indicator. In the Bonanza, this arrangement is satisfactory as the second receiver dial and indicator can be operated and read without inconvenience.

Indicators for the airway, outer and inner markers are located centrally on top of the instrument panel while the receivers, along with other remote operated equipment, are neatly racked just aft of the rear seat where they are readily accessible if and when servicing is needed.

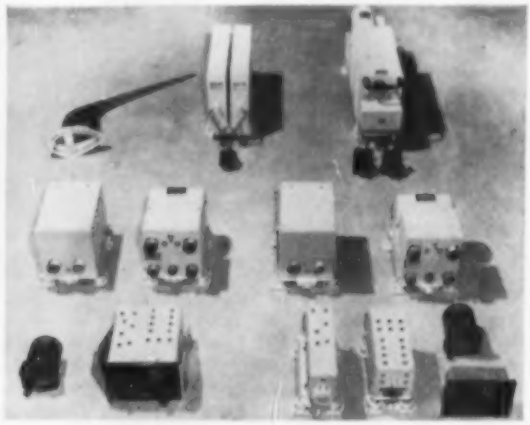
The 360-channel, 15-watt transceiver, however, is mounted on the floor just forward of the front seat and does not interfere with leg room.

To the left of the pilot is a control panel where, through flipping of toggle switches, the microphone and loudspeaker can be switched to any of the receivers or transmitters aboard.

Taking off from Los' Nation Airport, we climbed to 5,000 feet over Cleveland and ran a series of communication tests. Using the DTR-360 transceiver, we called a number of stations up to 112 miles away and received the following reports:



Remote receivers and transmitters are racked neatly on shelf behind rear seat, easily accessible for service.



DARE's dual omni is combination of VHF transmitters and receivers, marker beacon, glide slope and localizer facilities.

Name	*Distance*	*Direction*	*Report*
Mansfield Radio	65	SW	Loud and clear
Mansfield Tower	65	SW	Loud and clear
Youngstown Tower	55	SE	Loud and clear
Toledo Express Tower	112	W	Weak and clear

Later, when approximately 80 miles southwest of Lost Nation, we called them on the Unicom frequency of 122.8 MC. while at 6,000. They answered immediately and reported reception "five by five." (Loud and clear.)

The point should be made that the DTR-360 transceiver can be operated with one or two control heads. If one is used, the set receives and transmits on one frequency (simplex). If two heads are used, the set can receive and transmit on different frequencies, if desired (duplex). Reception by the DTR-360 is excellent. The receiver is very sensitive and selective, and the crystal locks it on frequency to a degree that it is like having your own "private line." I heard no overlap signals.

In the second phase of the flight check, we turned to the omni navigation equipment. The receivers have bold face plate design and markings, and are easy to read. To operate them is a matter of turning the volume control/switch to the right, flipping the omni-loc switch to "omni," and cranking the appropriate frequency on DARE's "micro-tuner." This feature on the receiver captured my admiration as it is truly precision tuning. To receive 111.6 MC., you set the dial for that frequency and get it with no crank wagging. The station comes in loud and clear.

This is accomplished by the engineering in the receiver. DARE designers incorporated heat stabilized parts along with "voltage stabilization" to eliminate frequency drift; and also a worm gear in the tuning mechanism with the scale on a steel tape some 20 inches long. It is marked every tenth megacycle. In tuning across the entire VHF bank I took special notice to mark any FM or TV images. None was heard. This is attributed to the tuned RF stage which insures maximum selectivity and rejection of unwanted images.

Immediately above the receiver is the omni indicator which mounts in a standard 3⅛ inch cutout. It is a left-right indicator and a to-from indicator combined into one easy-to-read instrument. By turning a knurled knob, the rotatable course selector provides direct or reciprocal course.

In checking reception of omni, we found that at 7,000 feet we could depend upon reception of a usable signal for about 100 miles from the omni station. Of the stations we checked, this meant that inbound plus outbound, we could use one omni station for 200 miles of flight path.

Anxious to check out the dual omni operation, Elliott and I set up a course outbound from Dayton omni, via V-88. Passing over Dayton, we set the course selector for 61 degrees and the to-from indicator showed "from." Elliott adjusted the L-2 autopilot to put the plane on course. Meanwhile on the other omni receiver, I tuned in Appleton omni, near Columbus, Ohio, some 73 miles away, and set the course selector for 281 degrees. The left-right needle immediately went off center. From that time on Elliott and I just sat there admiring the landscape.

As we came up on the Lewisburg intersection, the left-right needle on the indicator began to move towards the center mark. The instant it centered, I noted by reference to landmarks beneath that we (*Continued on page* 100)

NO. 212

To his great dismay, this student pilot found out how dangerous prop wash turbulence can be.

I learned about flying from that !

By CLYDE HENSLEY, JR.

I DID NOT HAVE to wait long after joining the flying fraternity to come up with my tale of—"here I was, flat on my back at 80 feet."

It all started when I decided that my seven-state territory was too large to cover efficiently by automobile, and besides, autos were becoming too dangerous to drive on today's highways. The airplane seemed to be the answer. Having arrived at this conclusion, I took myself, one day, to the local airport in Dallas and engaged a competent instructor to teach me the art of flying. I progressed through my first solo, countless stalls, 720's, simulated forced landings, and finally was checked out for solo cross-country. After taking several short cross-country hops, I decided that time had come for me to get some utilization from the airplane while continuing to train for my private license. So, in July 1956, on a hot Texas morning, I filed for Little Rock, Ark. This trip would finish my requirements for the license giving me more than the needed amount of solo cross-country.

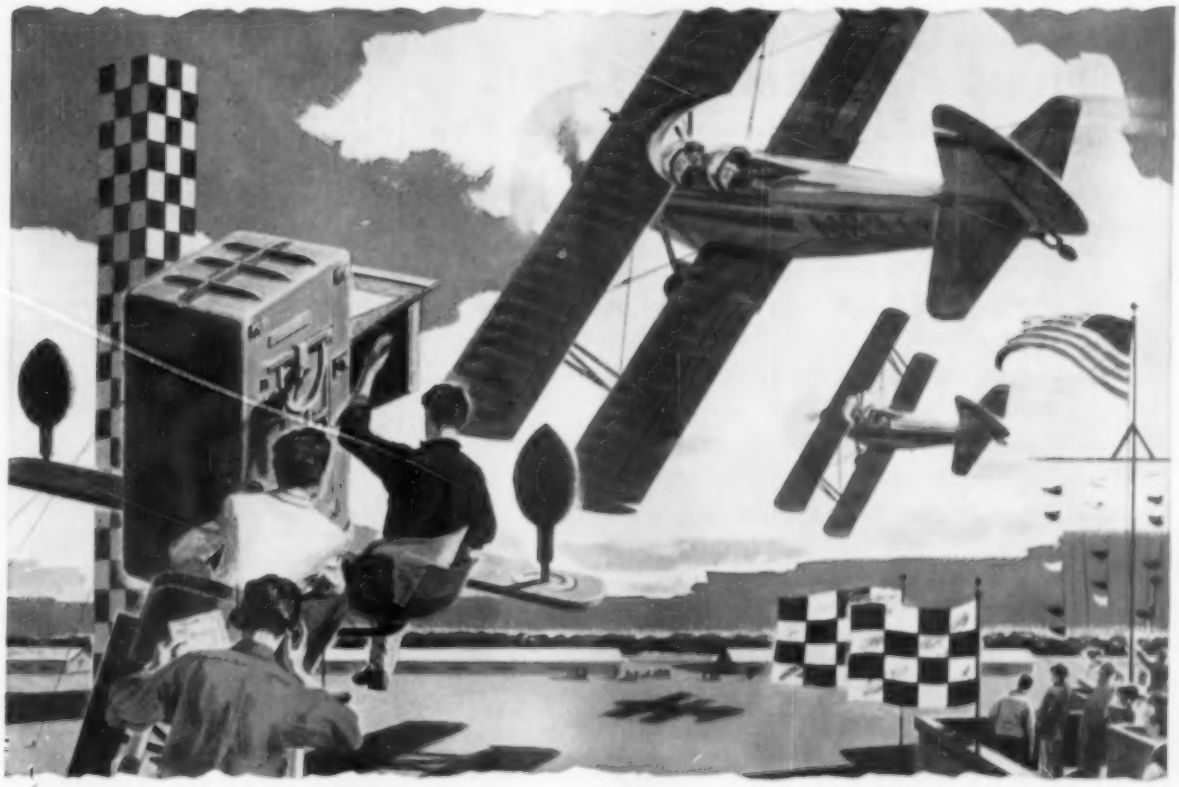
The flight from Dallas to Little Rock went off like clockwork. Every check point not only came up on course, but was right on the button, timewise, as well. Concluding my business at Little Rock, I proceeded the next day to Memphis, Tenn. The trip was again strictly according to plan. The only aggravation was the low frequency radio which got to "mushing" so badly that I gave it up and landed at the Memphis Municipal without radio contact. By the following afternoon I was all through in Memphis and had a comfortable margin of time for a return trip to Dallas before dark. With tanks full, flight plan filed and arrangements made to have the tower use signal lights instead of radio, I taxied out.

Following a Cessna 172 to the active runway, I noticed that there was a moderately heavy traffic of jets shooting landings on the long East/West runway and that it would be necessary to cross their path at mid-field on take-off. The 172 stopped on a marked area, its pilot ran his checks and was promptly cleared. While I waited behind him, a Constellation moved up to the extreme end of the runway several hundred feet beyond where the lightplanes made their take-offs. Since I had no desire to chug into the air ahead of a 300 mph airplane, I was relieved to see the tower give me a "hold" light. As the Connie roared by, I wondered whether its wake would cause any trouble to my little ship, but not a single ripple disturbed it. Then the tower was flashing the "go" light to me and, after checking incoming traffic, I taxied out and poured on the coal.

The Cessna broke ground easily and I started to climb out at an indicated air speed of 80 mph. It was at this point that things became extremely exciting. Suddenly, as if a giant hand seized it by the wing and thrust it violently upwards, the plane rose sharply and rolled to the left. When right aileron and right rudder did not respond I just rode the turn. With wings perpendicular to the ground, the nose naturally dropped fast; and if you have never been at 80 feet with the spinner pointing straight down, then you have no idea how large the ground can look. As soon as I felt the controls begin to respond, I proceeded to level out but at this point the altitude ran out on me. For a moment it looked as if the airplane might stay in the (*Continued on page* 104)

PLANE FAX

by STANDARD OIL COMPANY OF CALIFORNIA



Realism in the movies with daredevil flying

When a movie script calls for pilots and planes to re-enact daredevil flying of the early 1930's, the producers often call on Joe Pfeifer. Hazardous flying of outdated aircraft is bread-and-butter work for him. Operating out of the Santa Susana Airport, in California, he and his fleet of 1930 vintage airplanes have appeared in many motion pictures based on early-time flying adventures.

"Hollywood makes two strong demands when shooting a flight scene," reports Mr. Pfeifer. "One is full power for realism and the other is minimum maintenance problems to eliminate production holdups. I get both with Standard aviation products. Chevron Aviation Gasoline burns clean, never fouls the plugs and gives me the extra power I need for movie stunt flying.

"RPM Aviation Oil keeps the aircraft in top condition and holds engine wear to a minimum. Rings and valves stay clean as new. I've had no engine trouble using RPM . . . and in my kind of flying that's saying a lot."

Mr. Pfeifer's fleet of 27-year old planes, the largest such group of aircraft still flying, includes a restored and modified Pfeifer fleet biplane, Phillips Skylark, Davis DWL and a Fairchild 22.

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Aviation and the Oil Industry

(Continued from page 33)

peratures in military jet engines are presenting new restrictions and requirements on jet fuel. This continues to test both researchers and refineries.

Actually, the oil industry's contributions to aviation transcend the development, production and supply of fuels and lubricants. The pleased passenger who boards a transcontinental airliner in San Francisco and flies non-stop to New York in a few hours gives little thought to the enormous preparation that goes into making his journey possible. Yet, for every pilot, navigator or stewardess he contacts aloft, the airline has a half-dozen employees serving him on the ground. And behind these employees stand nearly two million men and women of the oil industry who have found, produced, transported, manufactured and delivered the special products that keep him in the air.

Delivery of these products once took place on a small order basis. But growth of the modern airline has long since dated this practice. To assure prompt delivery of desired quantities and qualities of products, oil companies and commercial airline organizations now contract for long periods of time on a large scale. One of the first of these contracts was signed by United Air Lines and Standard of California in 1932, calling for delivery of seven million gallons of high grade aviation gasoline. Two years ago these companies signed a repeat agreement, this time for more than $50 million of petroleum products over a four year period—the largest contract ever negotiated between an oil company and a commercial airline.

Large scale use of petroleum in aviation has brought with it a sticky handling problem, that of delivering vast quantities of highly volatile products at maximum speed with the greatest possible safety. At San Francisco's new International Airport, handling has been facilitated by construction of one of the world's largest and most modern hydrant fueling systems operated by Standard of California. The system supplies a continuous flow of aircraft fuels to 19 airplane parking positions in virtually unlimited quantities, eliminating the need for truck deliveries to aircraft and accelerating the entire supply operation. Standard's underground facility was designed to meet the tremendous demands of the jet airliners anticipated in the future.

But oil industry activities in aviation have ranged far beyond finding, producing and marketing petroleum. Early in 1924, Standard of California began work on a system of ground markings to aid pilots aloft. Many had become used to anxious moments looking for landmarks. This problem was minimized after 1926 when Standard Oilers finished lettering the names of towns clearly on the roofs of company warehouses in 700 communities up and down the Pacific Coast and as far east as Utah. Two years later, Standard erected six 10-million-candlepower beacons to augment a pair of 2-million-candlepower lights installed by the Civil

(Continued on page 66)

PILOTS PROVE ABILITIES IN *Powder Puff* DERBY

FIRST Pilot: Alice Roberts, right
Co-pilot: Iris Critchell
Plane: Beechcraft Bonanza

SECOND
Pilot: Doris Eacret, left
Co-pilot: Jean Parker Rose
Plane: Cessna 140

FOURTH
Pilot: Ruby Potter, right
Co-pilot: Marion Craver
Plane: Beechcraft Bonanza

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From San Mateo, California to Philadelphia, Pennsylvania, the 1957 All-Woman Transcontinental Air Race winged its way 2,567 miles! Throughout the race, the crews demonstrated skill and judgment to get the most out of plane performance and weather conditions. Decisions were their responsibility!

When the wheels touched down at the Philadelphia Airport, three of the first four planes in the Powder Puff Derby had been powered to victory by AC Spark Plugs. Yes, ACs were tops in one of the nation's top-flight private-plane contests. The extra reliability and performance of AC Spark Plugs have been proved in millions of hours of flight in military, commercial and private planes.

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Continental Motors Corporation

AIRCRAFT ENGINE DIVISION
MUSKEGON, MICHIGAN

(Continued from page 64)

Aeronautics Authority on the Pacific Coast.

It was about this time that Standard itself sprouted wings by purchasing one of the first tri-motor Fords. President K. R. Kingsbury took the occasion to sum up company enthusiasm for aviation in these words: "The general use of the airplane by American business institutions is inevitable. We hope to show to the Pacific Coast the last word in airplane development and give a demonstration of the commercial usefulness of aircraft. We also attach great importance to the opportunity we shall have for research in the field of fuels and lubricants for airplanes."

And demonstrate they did. Within the next few years Standard introduced over 30,000 guest passengers to flying as its fast-growing fleet of business aircraft visited West Coast airports as good-will ambassadors for aviation. The result was always the same: more bouquets for aviation. With more and more people taking to the air, Standard came out with the first airport directory of western airfields. The U.S. Government later published a national directory using the same format.

By 1930 the company was using six aircraft in its regular business scheme. Executives and supervisory personnel kept the aircraft busy most of the time, but the planes were often used in emergency. For example, when a company tankship was held up halfway between Los Angeles and San Francisco at Estero Bay for lack of a special 10-inch fitting weighing 100 pounds, the missing part was rushed to it by air.

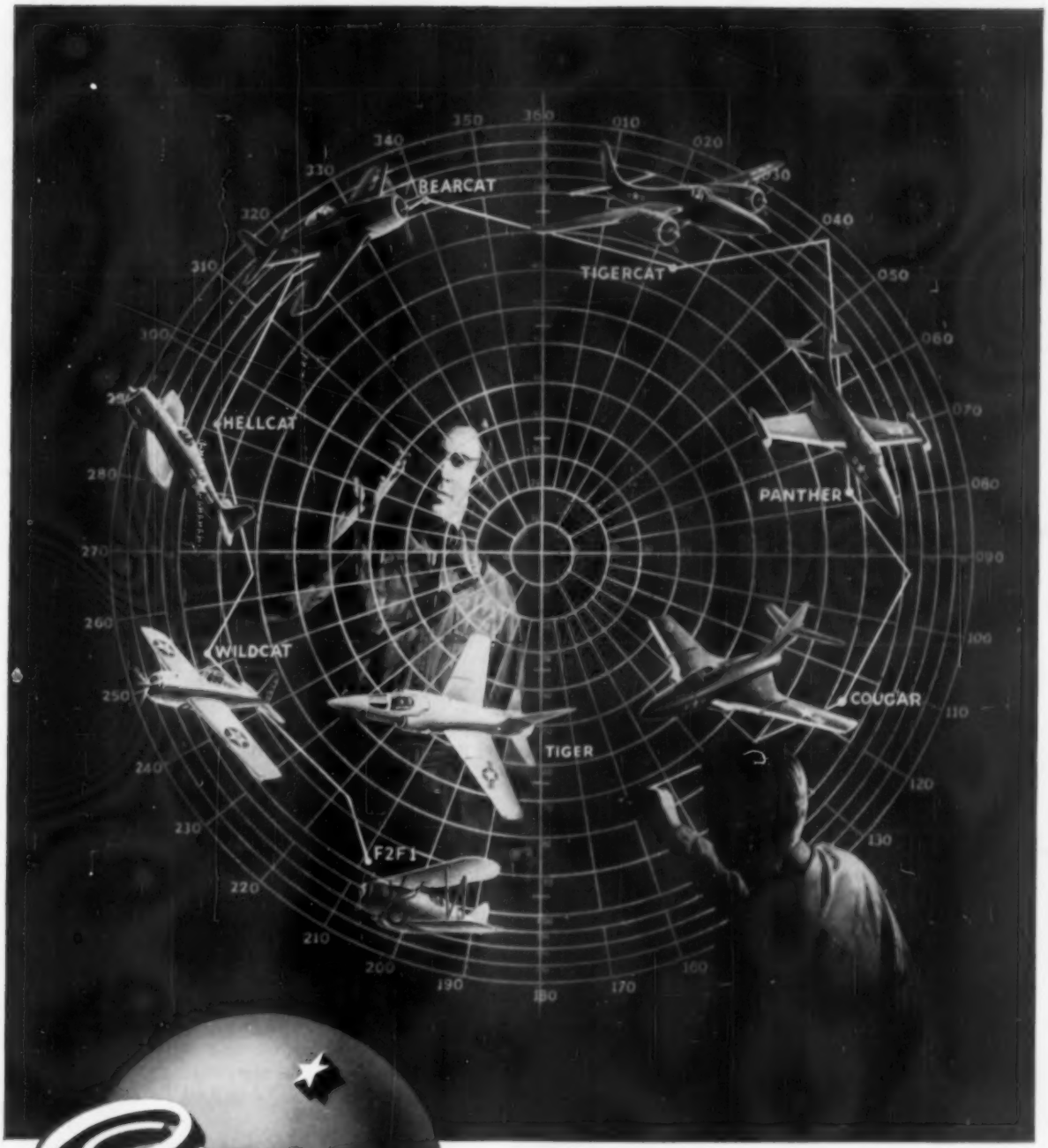
More recently, with company operations expanding to the far corners of the globe, Standard's aviation fleet has swelled to some 25 aircraft. "Tools of many purposes," as the aircraft operations people call them, these planes are employed for one single reason—they can do what no other means of transportation can do.

To cite an instance where this holds true—the bayou country of Louisiana and offshore, where the Gulf of Mexico is studded with archipelagos of steel islands from Texas to Florida. Here the helicopter has become a vital cog in the transportation network linking isolated oil rigs to shore in the sometimes storm-tossed waters of the Gulf. Standard uses four eight-passenger Sikorsky S-55's and one two-passenger Bell to whirl as far as 60 miles out to sea carrying key supervisory personnel, rushing equipment needed in a hurry and assisting sea craft in transporting crews to and from the rigs.

When hurricane "Audrey" unleashed her fury over the Gulf early in the summer, one Standard helicopter made nine trips to Cameron, Louisiana, hardest hit town on the coast, removing three hospital patients and 48 others, and delivering food and medical supplies. This helicopter also joined in the patrol search for survivors.

Overall, Standard flies an average of three and one-half hours per day in each of these machines, adding up to 25,000 relatively low speed but highly versatile

(Continued on page 68)



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(Continued from page 66)

air miles every month. During the first six months of this year, the 'copters carried an average of 2,675 passengers and 17,400 pounds of cargo per month. Would surface travel be safer? Well, Standard's team of pilots and heliport mechanics are responsible for an accident-free record to date. You can't even beat that in your living room!

Latest in the long line of company aircraft is the West Coast's first turbo-prop airplane—a four-engine Rolls Royce Dart-powered Viscount. Designed to integrate Standard's world-wide operations with its greatly increased range over previous company transports, this equipment will also be used to further knowledge of fuels and lubricants used in commercial turbine engines. For in the petroleum industry, research to find ways and means of turning out better products never ceases.

Over the past 75 years, research efforts have paved the way to manufacture of over 2,400 different petroleum products, nine of which are basic types of aviation gasoline. Government-specified variations of gas turbine fuels for jets account for five more distinctive petroleum products.

Manufactured to meet stringent standards set by government agencies and private industry alike, these aviation products have forced the oil industry to convert an increasingly large proportion of each barrel of crude oil for aviation use. Result has been to boost the average barrel's yield of gasoline from 25 per cent in 1918 to more than 40 per cent today. This redistribution of the symbolic barrel of oil has been achieved by continuous research and construction of costly catalytic cracking units which dissect and reassemble oil molecules in major refineries throughout the country.

Importance of this additional recovery was best underlined, perhaps, in World War II when the allies "floated to victory on a sea of oil." Indeed, this familiar phrase was almost literally true: petroleum products accounted for more than 50 per cent of the total war materials shipped overseas!

And petroleum looms even more significant today. The modern reciprocating engine planes, which won't be completely displaced by jets for years to come, consume four to six times as much fuel as the now obsolete planes of World War II. The gasoline they require for higher level performance is also of much higher quality, and is much harder to produce in sizeable quantities.

One recent jet aircraft consumes enough petroleum in one hour to run the family car for three years. The mushrooming civil and military demand for petroleum products has seen the consumption of gasolines and oils virtually doubled every three years since 1926—rising to the point where 1957 demands are actually hundreds of times what they were only 30 years ago. Credit for this amazing growth must be shared by aircraft and engine companies and the petroleum industry. Back in World War I, the Liberty engine of 1650 cubic inch displacement delivered about 420 horsepower on the fuel then available, which is estimated to have had an octane number close to 55. The Packard built Rolls Royce Merlin engine V-1650, used in World War II, featuring the same basic design and piston displace-

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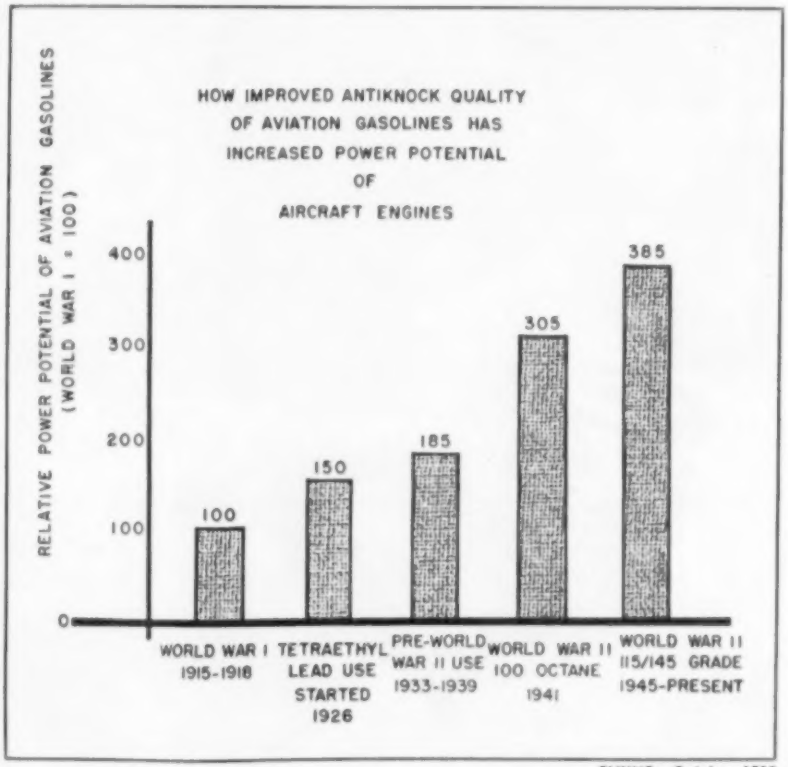

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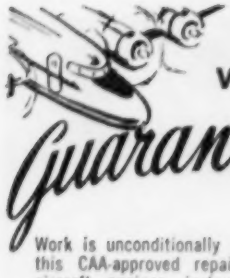

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(Continued from page 68)

ment as the old Liberty engine, developed more than 2,000 horsepower on fuels ranging up to 145 octane, more than quadrupling the horsepower.

This increase in power cannot be credited entirely to fuel because improvements in materials and design were necessary for the engine to withstand the high stresses of such a high power output. On the other hand engine improvements alone would have resulted in a relatively small gain in power without better fuel. In recent years, with jet fuel demand soaring, several aircraft turbine fuels have been developed which can be supplied in a never-ending stream. Of these, JP-4, an offshoot of British specifications leading to American production of JP-1 in 1945, is produced in largest quantity. Its sister fuel, JP-5, is used primarily on carriers where its 140-degree flash point makes for safe storage in outboard bunkers.

Hydraulic fluids, which transmit energy from a source to a utilizing device, are also playing an increasingly important role in modern aviation. Specifications for these fluids were relatively mild in the early 1940's. Temperature maximum was only 160 degrees Fahrenheit at that time, and requirements for the 25 million gallons used during the last 15 years were met without difficulty by a readily available petroleum base synthetic composition.

But the advent of guided missiles, coupled with tremendous increases in speed and altitude of aircraft, soon hiked requirements for hydraulic fluids and hydraulic systems beyond former standards.

Recognizing the lack of commercial incentive for developing satisfactory fluids for use in prototype equipment, the Air Force has sponsored several research programs in the search for new fluid base components, in an effort to develop adequate hydraulic fluids for use in the range of minus 65 to plus 400 degrees Fahrenheit.

Standard's research subsidiary, California Research Corporation, undertook the fluid development aspect of this program and came up with two fluids which met all government requirements.

Most spectacular implementation of this recent work has been use of the new hydraulic fluid in the much-publicized U.S. Air Force B-58—the world's first supersonic bomber. This delta-wing jet utilizes Cal Research's synthetic, silicon-based fluid to coordinate its advanced flight control system under extreme heat and pressure conditions that would decompose the oil-based fluids used in previous jets.

Speed of this new Convair bomber is so great that the auxiliary manual control system employed in subsonic models is useless. Thus, transmission of vital energy impulses from pumps, actuators, and engines to control surfaces, is carried exclusively by the new fluid which performs a role roughly parallel to that of hydraulic fluid in automobiles.

Another aviation first centered around development of the Peak Temperature Indicator in 1949. This mechanism measures the temperature of engines, the baggage room and other critical points where heat might endanger flight safety.

In the field of lubricants, heavy plane oil research has overcome a number of problems which limited performance before World War II. Up to 1938 aircraft engines operated with an uncompounded blend of Pennsylvania stocks. But increase of engine outputs and temperatures soon brought on major difficulties in the form of wear, engine deposits, ring sticking and filter plugging. Tests conducted in commercial airliners with oils containing detergents similar to those used in heavy duty oils remedied some of these problems during the 1940's.

Shortly after 1950, Standard began flight testing a new type of compounded aircraft oil in one of the most extensive lightplane programs ever conducted. Testing involved 34 planes of various models operating throughout the company's western marketing area. After demonstrating significant improvements in wear, cleanliness and length of time between overhaul periods, this oil was put on the market in 1953 as RPM Aviation Oil. Today it is the largest selling lightplane oil in the West.

Special greases for aviation made their bow during World War II when the Bureau of Aeronautics issued specifications for high and low temperature greases. Today eight special greases designed for specific requirements are in general use under an arrangement where military experts set specifications and industry turns out the desired product. Soon Cal Research expects to go the military one better by coming up with a three-way, multipurpose product which complies with specifications for the two most widely used high and low temperature greases as well as the military's popular general purpose grease—all this in a single product.

And so it goes throughout the entire petroleum industry—each company pushing forward its original research on better fuels, oils, greases and hydraulic fluids at the fastest possible pace, ever eager to outdo its rivals in the fierce competition of the oil industry, but also always willing to cooperate on major projects in the name of national security and aviation progress.

This is as it should be under our competitive free enterprise system. Individual initiative has played a major role in boosting aviation to its present heights, but pooling the resources of entire industries has been equally important.

Given continued cooperation between engine and aircraft designers and petroleum technologists, improvements in the performance of tomorrow's aircraft will more than match those of the last half-century in the promising years ahead.

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Beechcraft Travel Air

(Continued from page 54)

conditions is 1,640 feet. The worst condition given was at a field elevation of 8,000 feet with a temperature of 100 degrees. Here the take-off would require 5,180 feet. These figures are for the airplane at gross weight. Our takeoffs indicated the figures to be well within the capability of an average pilot. The Travel Air, due to the wide tread of the main gear and the tricycle configuration, is highly stable on the ground. Visibility is good and the easy-working, steerable nosewheel makes taxiing or take-off run as simple as advancing the throttles and easing back on the elevators.

The two Lycoming, four cylinder engines, rated at 180 hp, do a smart job of pulling the Travel Air. I made one-mile check runs in four directions. Engineering says that with 75 per cent of power at 7,500 feet, MSL, the maximum cruising speed at 2,450 rpm is 200 mph. Our runs were made at 1,500 feet in a humid 75 degrees and with a 12 mph breeze. Despite lack of familiarity with the airplane, my four way average was just a shade under 200 mph. Later, at 4,000 feet and 86 degrees, by indicated airspeed showed 182 mph. After this, I pulled the power back to 20 inches and 2,000 rpm, and got an IAS of 150 mph, which corrected to a true airspeed of 165 mph. We were not burning more than ten gallons of gas per hour at this power setting. If I figure correctly, this would give a cruising range of 1,386 miles on the normal complement of 84 gallons of gas. This exceeds Beech engineering figures, which show a maximum range of 1,400 miles on 110 gallons at 164 mph. This figure of 110 comes from an installation of two 25-gallon regular tanks with an optional two 30-gallon auxiliary tanks in place of the normal two 17-gallon auxiliaries.

The Travel Air is even quieter than the Bonanza which has the reputation of being the quietest airplane aloft. If I had any doubts, they were dispelled. My ear isn't keen enough to measure the small difference of three decibels, but the Travel Air is that much quieter than the Bonanza by actual measurement. I will bear witness that we were able to carry on a four-way conversation comfortably and without voice strain. Super soundproofing, mufflers, abandonment of augmentors in favor of cowl flaps, extra thick windshield and windows—there are some of the things that contribute to the Travel Air.

At altitude I had a go at the stall characteristics. It would be only natural to assume that a high performance airplane might have some uncomfortable ones. The pitch might be a little violent. It might have a tendency to roll too quickly in power-on stalls, or have some other quirk. Surprisingly, Travel Air stalls are as gentle and easy to get along with as those of any airplane I have ever flown. For example, with full cruising power, you must pull the nose to an unusually high and uncomfortable attitude. Then you wait until the speed falls below 80 mph.

(Continued on page 74)

Like the Hi-Fi enthusiast says, "If you don't have Hi-Fi you only hear half the music." The same applies to the pilot who uses only Sectional or Regional (WAC) aeronautical charts.

Nothing wrong with charts, mind you, and you certainly want current ones in your airplane, but you do twice the work and get half the navigation information if you fly by charts alone. How come? That's easy—Omni. The way they're plugging in VOR stations nowadays, the regular charts just can't be kept up to date with the most important navigation assistance you can use.

For every prominent check point which a map might give you on a typical 200-mile cross-country, you've got a hundred check points with your Omni . . . actually, an infinite number of check points. In other words, with Omni you can check your position every minute of the way on almost any route. That is, if you have up-to-date radio charts. The Sectional charts, as you know, are revised now only twice a year.

I did a little checking, and between Boston and Washington there are eight new Omni stations along the route or on either side for cross bearings that aren't shown on the latest Sectional aeronautical charts. See what I mean? Flying by Sectional alone makes the Boston-Washington trip quite a task—three big charts to wrestle with plus a lot of pilotage, especially if the visibility is down and every town and city looks alike. With a radio chart, a single piece of paper does the trick plus giving you a lot more navigation information.

In case you're not familiar with radio charts, there are two sources. Jeppesen in Denver and the U. S. Coast and Geodetic Survey offer radio chart service on an annual subscription basis, providing you automatically with new route charts, whenever new radio facilities are added or frequencies changed.

These charts certainly save cockpit clutter and only infrequently will you have to refer to a regular chart. For instance, Jepp Chart 7-8 takes you all the way from Memphis to Albuquerque. Naturally, you should always have Sectional or WAC charts for your whole route on board for the final part of a trip to an airport not served by a radio facility, or for the occasional times when radio aids are not available.

With a good Omni and radio charts, life sure gets easier.

See you next month.

Nancy

P. S. If you'd like a FREE Copy of our little booklet "How To Fly Omni," just write me, c/o Narco, Fort Washington, Pa.

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(Continued from page 72)

There is considerable buffeting but no tendency to fall off in either direction. Even in this condition aileron control is good.

With gear and flaps down, and power off, there is a definite buffeting to warn that the stall is approaching at an indicated 75 mph. The actual stall occurs at 70. With five degrees of "up" elevator, the airplane is stalled. There is buffeting, but very little more action. With special effort you can suck the wheel all the way back to the stop. This causes an increase in the buffeting and the nose begins to pitch—"bob" is a more accurate description, for the oscillation is not large. Even in this condition there is little tendency for either wing to go down. When one did, it was an easy matter to bring it back up with the aileron.

In a power-off turn, gear and flaps down, a buffeting began about 75 mph and the plane actually stalled at 70. However, the airplane just stays in the turn and gently bobs its nose. If you aggravate the stall enough, the plane may gently roll out over the top. In all cases the stall was quickly and easily stopped by relaxing back pressure on the elevators.

While ticking along at 175, Tuttle said, "I want you to see the emergency gear operation." With that he hit the "gear down" lever. Most airplanes are placarded against lowering gear above a specified low airspeed. When the Travel Air gear went down at this speed, the nose first gently came up. As the gear locked down, the nose fell and the airspeed went slightly past trim speed. Then the nose came up to stabilize very close to the original trim speed. I like this safety factor.

On one take-off, I started the stop watch just as the wheels began rolling. The Lycomings are approved for full rpm of 2,700 and full throttle for an indefinite period. Leaving them at this setting, I got the gear up and held an airspeed of 105 mph—given as the best rate of climb. Engineering figures show a sea level rate of climb as 1,350 fpm. In six minutes and 16 seconds, we passed 7,000 feet. This was just under 6,000 feet off the ground and included the take-off roll. Actually, if I owned this airplane, I would never use the maximum climb. The nose is so high that visibility ahead is difficult and the angle is uncomfortable for pilot and passengers. A speed of 130 mph produced a 1,000 fpm climb at an altitude of 4,000 feet. And 140 mph gave a strong 900 fpm from 3 to 5,000 feet. This is much more comfortable and gets you on your way at a good clip while climbing to best cruising altitude.

Aileron control pressures are light. The plane will roll rapidly from one steep turn to another, with nothing but aileron control, and never displace the ball. Rudder and elevators are somewhat stiff, as they should be in a 200 mph airplane. At lower speeds, in landing approaches and take-offs, the stiffness disappears and pressures become ideal for comfortable control.

Following are some performance figures which I did not have opportunity to check, but which are of interest. Service ceiling for two engines is 19,000 feet, where the airplane is still climbing at 100 fpm. On one engine the service ceiling is 6,200 feet which leaves a climbing ability of 50 fpm. Absolute ceiling at 4,000 pounds with two engines is 20,900 feet and with a single engine is 8,000. This is obtained by descending from a higher altitude and leveling out at this point. Landing distance (maximum performance) is 979 feet with no wind. Over a 50 foot obstacle the distance is 1,449 feet. Although I made no special effort to make short field landings, it appears these figures are not difficult to meet.

Empty weight of the airplane is 2,580 pounds. This gives a useful load of 1,420 pounds. When gas tanks are full, the available weight for passengers and baggage is 916. The baggage compartment is placarded for 270 pounds.

Propellers are Hartzell and hydraulically controlled by Woodward hydraulic governors. They are full feathering by pulling the prop control back through a detent. The gasoline heater in the nose is the same as in the Model 50 with the exception of the jets and exhaust. A defroster runs completely across the windshield.

It is my conclusion that the Travel Air is a rugged high performance, easy-to-fly airplane which will be very popular in the light twin field. END

SPECIFICATIONS OF THE BEECHCRAFT TRAVEL AIR

Engines	2 Lycoming, 4-cyl, O-360-A1A
HP and RPM	180 @ 2,700 for all operations
Cruising Speed Maximum (at 75% power) 2450 rpm at 7500 ft	200 mph
(at 65% power) 2350 rpm at 11500 ft	191 mph
Stalling Speed (Power off), Flaps 33 degrees, Gear Down	68 mph
Maximum Range @ 164 mph	1400 mi. on 110 gal.
Gross Weight	4000 lbs.
Empty Weight	2850 lbs.
Useful Load	1420 lbs.
Available weight for people and baggage with full tanks (standard fuel)	916 lbs.
Wing Span	37 ft. 10 in.
Wing Loading at gross wt	21.6 lbs./sq. ft.
Power Loading at gross wt	11.1 lbs./hp
Baggage Capacity Maximum 270 lbs.—rear 270 lbs. less equipment—front	
Fuel Capacity in standard wing tanks	86 gal. (84 usable)
Fuel Capacity with optional auxiliary wing tanks	112 gal. (110 usable)
Oil capacity	16 qts.

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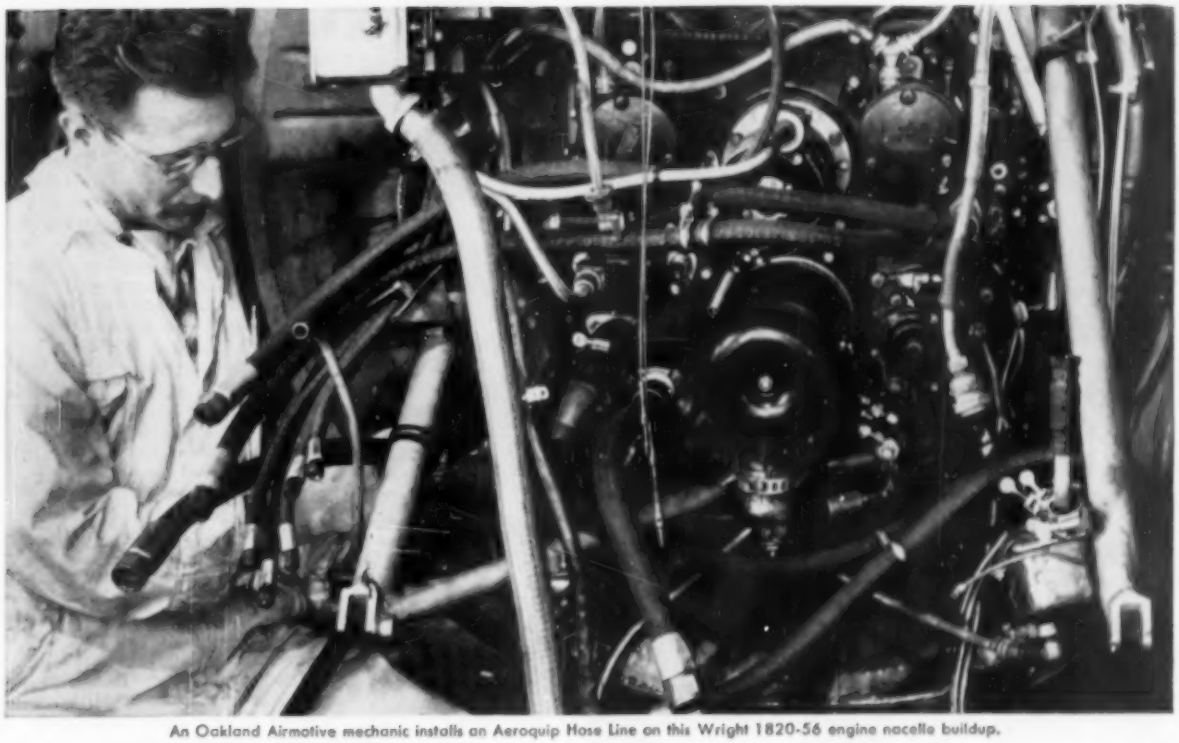

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You Can't Tell a Pilot

(Continued from page 48)

grand art of aerial navigation is available not alone to the professional or to the young adventurer, but to the most sober of established citizens. This fact, amazingly, is not commonly realized, and people continue to be surprised on learning, for example, that an executive of the stature of IBM's Thomas Watson, Jr., is a pilot of considerable experience. A gracious old gentleman of my acquaintance whose name is a nationally known trademark has covered the continent in his own lightplane and his charming wife has some hundreds of hours solo in their Bonanza—yet they courted in a buggy with the fringe you know where.

In my days with the airlines, I never cease to be amazed at the unlikely personalities who were themselves pilots of varying degrees of experience. The western part of the country of course, more than the eastern, takes for granted the use of the airplane for everyday transportation, the distances between population centers being what they are. The Flying Farmers are no association of stunt pilots, but rather the very gentry who purvey for you city folk your meat and potatoes. They employ airplanes just as casually as they themselves, not necessarily their fathers, once used Model T Fords, to carry feed in, to get around in.

An airline ticket agent thought it odd that an experienced traveler like Lowell Thomas, Jr. should buy a one-way ticket to Wichita, thus losing the benefit of the round-trip discount. What she did not know was that the passenger was on his way to the factory to take delivery of a new 180; he needed no airline captain to drive him home.

One of the local amateurs, like myself, lost some of his brashness when he dropped down to the pet shop to buy some food for his tropical fish and learned that the lady who ran the shop and was ladling out the worms had come in second in the transcontinental Powder Puff Derby!

It was one of my duties as an airline representative to talk to worried passengers when the weather was bad and the flights delayed, in order to reassure them that they were in capable hands, that their flight would be a safe and pleasant one.

But it got so that I didn't dare patronize even some little gray-haired old lady and try to put her off with hollow generalities because she was quite apt to come back at me with, "Never mind the small talk. Does this crew know that ice can stall out one wing ahead of the other?"

What I mean, you just can't tell who is a pilot! END

SMALL PACKAGE

A SMALL two-pound package was recently flown by KLM from New York to Amsterdam, Holland. Its value was over $1 million—its contents, the 44.5-carat Hope diamond and a 33.7-carat sapphire once the possession of Catherine the Great.

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The Philosophy Behind the New Grumman Turbo-prop Transport

(Continued from page 41)

mum benefits from aircraft ownership. A recent CAA survey indicates that better than 3,500 corporate aircraft are flown by professional pilots. The preponderance of multi-engine aircraft are operated by professionals whereas only about one in ten of the single-engine business aircraft use professionals.

Another development is noteworthy. In recent years the leasing of business aircraft has gained further acceptance. Companies and corporations which occasionally or regularly need planes, do not wish to incur the expense of ownership, find a leasing arrangement suited to their needs. Some companies even rent planes to supplement those they own when unusual needs arise. Lease arrangements differ widely to fit varying conditions. Some leases cover the plane, crew and maintenance. Most leases carry an option to purchase the plane under specified terms.

THE FUTURE MARKET

Business flying has been growing faster than any other category of general aviation and indications are that this growth will continue. The trend testifies that the craft are increasing in value to their owners.

—They are flying more of their business personnel
—They are flying farther per business trip
—They carry on more of their business by air
—They are buying more and better equipment for use aboard their aircraft.

What has been responsible for this growth picture in the business aircraft market? At first glance it might appear chiefly to be an opportunity to save time and multiply convenience over travel by public conveyance. More important, however, the business plane is taking shape as a profitable management "tool" for doing a better job. The uses of this tool which can do something within the capacity of no other, are manifold—service customers immediately, scout new business, multiply executive effectiveness, carry on face to face negotiations with customers.

Other factors favorable to business flying are: industrial dispersion with plants located at off airways sites; the general optimism of business guaranteed by continuation of high profit levels; sectional competition and realization by corporations that they can keep travel time of high salaried key personnel at a minimum by air travel. There is also an element of prestige attached to aircraft ownership —tangible evidence that a firm is receptive to the modern ideas.

Taking all factors into consideration, business flying appears to be on the threshold of further growth.

FUTURE AIRCRAFT

Competition to develop advanced business airplanes has been keen over the past few years. Many U. S. and foreign airframe manufacturers entered the field. Many projects were designed to meet military requirements for crew trainer and high speed light transports. Fewer were designed primarily as executive types for certification under Civil Air Regulations, Part 041b.

Presently newly active in the design of business aircraft are such leading companies as Lockheed, North American, Fairchild and McDonnell—these in addition to the trio of Cessna, Beech, Piper and others long traditionally producers of light aircraft. These companies illustrate the swing by manufacturers formerly primarily engaged in military production.

Although Grumman ceased production of the Mallard amphibian in 1949 to concentrate on Navy jet fighters for the Korean war, the company has continued active in commercial design. We never did lose interest in returning to the commercial market and many designs came off the drawing boards between 1949 and 1956.

In the fall of 1956, Grumman inaugurated surveys and field studies to determine what needs existed for executives already using multi-engine airplanes, and pilots operating them were queried. The studies showed a very strong requirement for an aircraft capable of operating from 4,000 feet runways and one which permitted flexibility of altitude with regard to weather and traffic. Also strongly evident

(Continued on page 80)

NEXT MONTH IN FLYING

"COWBOY AT FARNBOROUGH"

By HARRY HARPER

Samuel Franklin Cody, like his friend "Buffalo Bill" Cody, was a product of the frontier. No relation, but akin in many respects, the two plainsmen left their mark in history. Sam's mark however, is relatively unknown, yet is the more far reaching. Undoubtedly the big bluff Texan is one of the immortals of aviation. Read his story in the November issue of FLYING.

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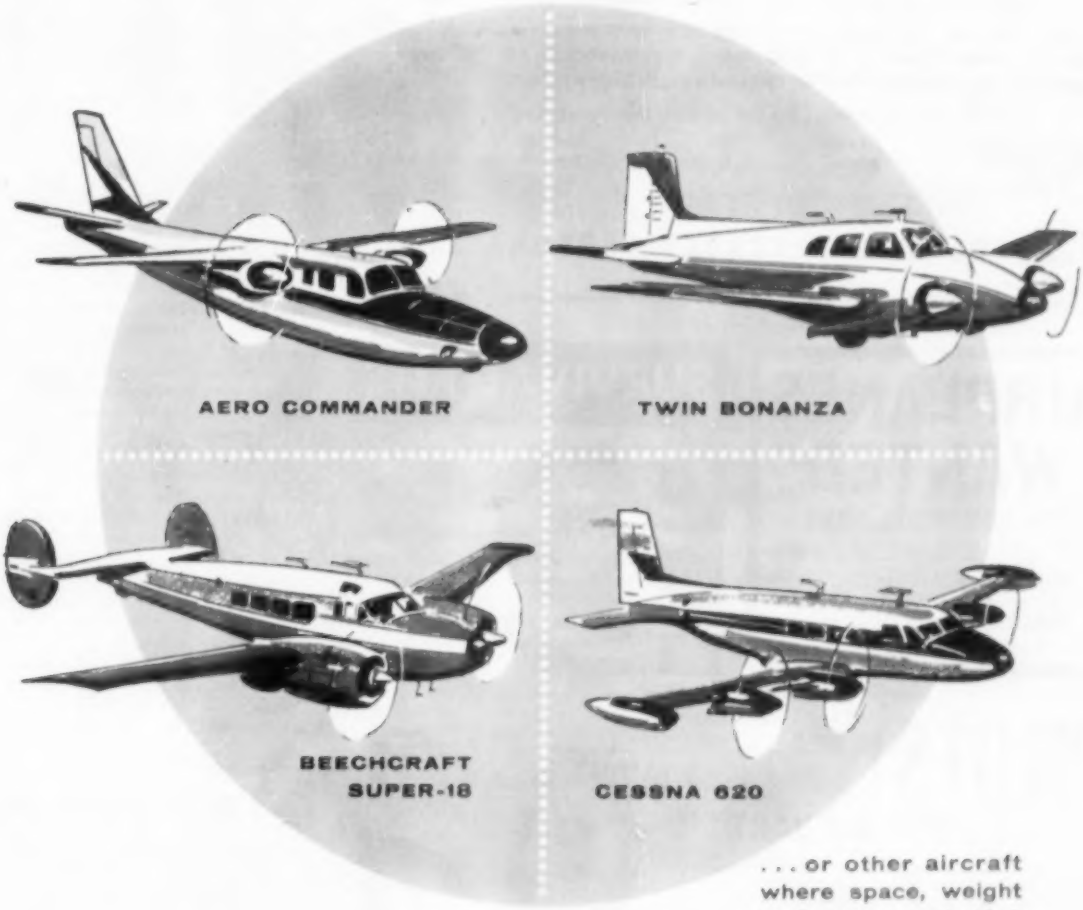

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(Continued from page 78)

was the desire for an airplane offering realistic speeds and range. Nowhere did we find requirements for speeds approaching supersonic, or for ranges in a transoceanic category.

For information obtained, and with a 27-year record for dependable military and commercial aircraft behind it, Grumman decided as of July, 1957, to re-enter the commercial market.

Our executive design has been created specifically for modern businessmen. Designated "Design 159," it is a pressurized turbo-prop airplane powered by two Rolls Royce Dart engines. The plane will cruise at a maximum speed of 370 mph at 25,000 feet, carrying 12 passengers. Capable of operation from runways under 4,000 feet with full load "159" has a maximum range of 2,200 miles plus 230 miles and 45 minutes reserve. The airplane will be available in various interior arrangements, including a high density version carrying a maximum of 20 passengers.

Along with the planned development of the Rolls Royce Dart engine, already proved by millions of hours of airline operation—Design 159 incorporates provision for expansion of speed, range and performance greatly increasing its life span. This factor will make the airplane a more than sound financial investment. The new transport, engineered for installation of today's most modern electronic and communications equipment, as well as for future devices, has a gross weight of 31,000 pounds, a wing span of 78 feet, and an overall length of 64 feet. One of its many features is location of the doorway and a self-contained stairway just aft of the cockpit, making "159" independent of ground handling equipment the pilot controlling loading operations.

The transport will be certificated under 041b government airliner regulations and will undergo exacting and vigorous flight testing before initial delivery is made. The first aircraft is due off the production line in mid 1958. END

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MEMO

● **FLYING,** with a stability of 30 years' continuous publication, is the world's most widely read aviation magazine.

Average net paid circulation, last half of 1956:

FLYING	190,226
AVIATION WEEK	62,970
AVIATION AGE	51,583
AMERICAN AVIATION	46,443

● Of the 169 publications with an ABC circulation of 100,000 or more, **FLYING** stood second highest in rate of growth for the last half of 1956.

● **FLYING's** average net paid monthly circulation for the six months' period ending June 30, 1957 was:

221,236*

● Of this amount, 100,427 were sold on the newsstands of the United States.

● **FLYING's** paid foreign circulation of 26,403 is distributed in 81 countries and possessions of the globe.

● **FLYING** is proud of its role in broadening the base of public acceptance and appreciation of aviation in the United States.

Gill Robb Wilson

GILL ROBB WILSON
Editor and Publisher

* *As filed with the Audit Bureau of Circulations, subject to audit.*

American Girl Breaks Russian Record In The Aero Commander 560-E

THE PILOT: 26-year-old Miss Jerrie Cobb of Ponca City, Oklahoma . . . a slender, attractive blonde who has been a licensed pilot since her 16th birthday.

THE PLANE: A standard production model of the new Aero Commander 560-E, a 7-place twin-engine executive transport with a 1625-mile range, plus safety fuel reserve.

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THE NEW RECORD*: A 1522-mile non-stop solo flight in eight hours and five minutes. Average speed was 190 mph. Remaining fuel, 30 gallons.

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Air-conditioned and sound-proof, the hotel has 40 fully appointed rooms. Rates, double, are $16; single, $12. Hide-away beds $3 additional. Good food and refreshments are to be found at the hotel.

Itinerant and corporate aircraft taxi to Butler Aviation, due west on the field, at the Marine Terminal. The only fixed base operator at LaGuardia, Butler registers and collects all fees for public aircraft as agent for the Port of N.Y. Authority.

Parking fees run from $2 for the first eight hours or fraction thereof and $1 for each additional eight hours for planes up to 5,100 lbs; $2.50 and $1.50, up to 10,000 lbs; $3 and $2 up to 15,000 lbs. There is no charge for an hour or less. Take-off fee is $.02 per thousand lbs. max. gross weight and a minimum of $2.50.

Aircraft using LaGuardia Airport must be equipped with two-way radio capable of direct two-way communication with the control tower, including the VHF frequency designed for ground control, 121.7 mc.

Long Legs for Mr. Scott

(Continued from page 49)

Scott. "Here's how it works. You charter a Tri-Pacer next time you go on a trip. One of our flight instructors will be your pilot and he'll start teaching you the principles just as soon as you get into the plane.

"You'll learn how to control the airplane and make flight plans and check weather and read maps and use the radio aids. Before you know it you'll be ready to solo—and all this accomplished in the course of regular business travel."

At the moment it sounded a little visionary to Scott who had never before pictured himself in such a role. It seemed a bit more practical on March 25, 1955, when he completed his first flight—a business trip from El Paso to Carlsbad and return.

Cross-country experience and hours in his log book were acquired through management trips made during the remainder of 1955. On January 9, 1956, Scott received his private license. Throughout this period, he and Mueller kept a precise set of facts and figures on time saved by use of airplane "When an executive's salary is divided by his time on the job, and when a substantial part of his time is spent in travel, the cost of travel time becomes an important addition to overall

(Continued on page 86)

*Dr. M. A. Lemmons, O.D., Ozona, Texas . . . another Mark 20 owner.

COMPARE & DISCOVER

COMPARE the Mark 20 with other four-place executive airplanes.

DISCOVER why the Mark 20 is years ahead in styling and performance.

	Mark 20	Plane Type 82	Plane Type 72	Plane Type TP
PERFORMANCE				
Cruising Speeds (70% h.p.)	165 mph	155 mph	124 mph	128 mph
Engine h.p.	150 hp	230 hp	145 hp	150 hp
Range	900 miles	655 miles	620 miles	525 miles
Pay Load	720 lbs.	679 lbs.	673 lbs.	669 lbs.
Rate of Climb	900 ft./m	1030 ft./m	660 ft./m	725 ft./m
Service Ceiling	17,200 ft.	19,800 ft.	13,330 ft.	15,000 ft.
SAFETY				
Military proven low-wing visibility	Yes	No	No	No
Tubular steel safety cabin	Yes	No	No	Yes
All-weather adjustable engine cooling system.	Yes	No	No	No
Non-fatigue spruce wing	Yes	No	No	No
ECONOMY				
Miles per gallon	20	12.7\	15	14.7
Cost per engine hour of operation (Based on engine exchange prices)	$1.00	$3.45	$1.50	$ .93
Fuel cost per mile	2c	2.8c	2.4c	2.6c
Total cost per mile (Based on 600 hours operation per year)	6.6c	9.8c	8.2c	8.3c

In the Mark 20 you get these EXTRA VALUES—

- ★ Only executive plane with flexible-design wing
- ★ Wide tread landing gear—over nine feet
- ★ Greater visability
- ★ Maintenance-free tricycle landing gear and flap system
- ★ Low center of gravity for ease of handling on ground and in strong cross winds

You get all the advantages of years-ahead styling and performance with the **Mark 20**—the first really new executive airplane in many years.

*An optometrist with offices in Ozona and Big Lake, Texas. Dr. Maurice A. Lemmons has 2500 hours of flying time with 75 hours in a Mark 20.

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UNITED AIR LINES

(Continued from page 84)

cost," he pointed out when he suggested to president Foster that Food Mart purchase a plane.

These are samples of the figures Foster analyzed:

Comparison of travel time required to visit Food Mart stores in southern New Mexico:

ROUTE	Plane and Ground Travel Time	Time by Car
1st Day:		
El Paso—Alamogordo	:55	1:20
Alamogordo—Carlsbad	1:25	3:00
Carlsbad—Roswell	1:00	2:00
Total	3:20 hrs.	6:20 hrs.
2nd Day:		
Roswell—Carrizozo	1:05	2:00
Carrizozo—Truth or Consequences	1:45	2:30
T or C—Silver City	1:05	2:30
Silver City—Las Cruces	1:05	2:00
Las Cruces—El Paso	:30	1:00
	5:30 hrs.	10:00 hrs.
Total 2-day car time		16:20 hrs.
Total 2-day flying and ground time		8:50 hrs.
Time Saving (almost one full working day)		7:30 hrs.

Or consider the day a special problem cropped up in Roswell, calling for immediate handling by Scott. In his Tri-Pacer he reached Roswell in 90 minutes vs. four hours by car. On that occasion his round trip saving was 4:35 hours and an early solution to his problem in Roswell.

In June, '56, Food Mart leased from Southwest a Tri-Pacer for its full-time use. When the 1957 model came along, Food Mart took one over, still under the lease arrangement which is regarded by many firms as the most economical method of financing company planes.

Scott logged more than 300 hours in the first year Food Mart operated its own plane. "I would have flown a great deal more," he says, "but the 'unseasonal' weather that inundated central Texas early this year kept me from making many trips in that direction.

"The biggest thing that appeals to me about flying is the relief from the wear and tear on myself, as compared to the hard, hot drives I would have had to make in my car. Traffic jams in towns en route, narrow squeaks in near accidents, detours for road repairs, hastily snatched meals—they all take their toll.

"From the company standpoint, the big advantage has been my ability to keep in constant contact with store locations and still have ample time in the home office."

As a graduate of the "Learn As You Travel" program, Scott further comments, "Learning to fly has added interest to my business activity, and the fact that, in the process, I am conducting the activity more efficiently has given a real point to my flight training." END

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Snow is your friend when your plane is equipped with FEDERAL SKIS! In winter, you actually have more landing fields than in summer because every reasonably flat field becomes a safe airport. FEDERAL is the pioneer builder of *approved* skis for all types of aircraft . . . whether you fly for pleasure or carry cargo. FEDERAL skis are an investment that will pay big dividends in extending your flying and in greater safety.

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CORPORATE CAPTAIN

By FRANK FOX
Captain, U. S. Steel Fleet and for 16 years Captain, Capital Airlines.

AL LITZENBERGER, Chief Pilot of Mesta Machine Company of Pittsburgh, Pa., has been a corporation pilot for 22 years—among the very early pioneers of this profession. But his length of service does not begin to tell the story of this respected veteran, which is related here as typical of the founding breed of corporation pilots.

Like Mitchell in military aviation, Litzenberger early foresaw the ultimate significance of business flying. Throughout the years he has battled for safety, job specifications in corporation flying, improved aircraft performances to meet corporate utilization, and kindred factors which have added up to the character of the present business fleet.

No pilot with a problem, or company needing advice about operation of its aircraft, but has found a wise counselor and willing friend in Captain Litzenberger. Confreres around Pittsburgh, whose Allegheny County Airport long has been known for its volume and quality of business flying, say that the entire development traces largely to the influence of Litzenberger.

Originally from the Northwest, son of a Washington State rancher, Al soloed in 1921, and later joined the immortal Tex Rankin who was then barnstorming near Walla Walla. This period was followed by an enlistment in the Army Air Corps. Litzenberger was crew chief of a Martin bomber at Langley Field at the time of his discharge and headed for old Mayer Field, Pittsburgh's original airport, and Bettis Field where Pittsburgh Airways was based—shades of Barr Peat, Bob Headlin, Cliff Ball, Ken Scholter et al.

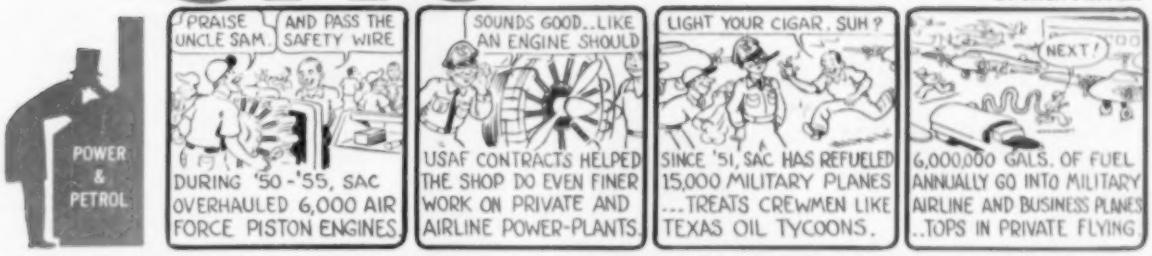
The big news of those days was the advent of the Ford Tri-motor. Ford established a special school of instruction to qualify Tri-motor pilots. Litzenberger graduated from the school and subsequently flew freight out of Detroit. This in turn led to a job with Transcontinental and Western Airline (now TWA), for whom Al piloted Fords, Northrops and Fleetsters from 1931 to 1935.

Well established as an airline pilot, Litzenberger denied interest when approached by the veteran Ed Leedy with a proposition to fly for Mr. Lorenz Iverson of Mesta. Some time later by chance, Iverson was a passenger on one of TWA's flights from Chicago to New York. The pilot and passenger fell into conversation. Al was deeply impressed by Iverson's technical knowledge of aircraft and his concept of future business flying. Further study of its challenge and potential led him to joining Mesta.

The road was wide open. Iverson was one of the very few who believed it led anywhere. Current aircraft were inadequate for company use. Safety standards were non-existent. Utilization was problematic. The weight of pilot judgment was unspecified. No wage scales existed. Maintenance was haphazard. To all such things Litzenberger gave himself. The result is history. END

SAC Silver Jubilee Newsreel

BY JACK PATTON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PRAISE UNCLE SAM.
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DURING '50-'55, SAC OVERHAULED 6,000 AIR FORCE PISTON ENGINES
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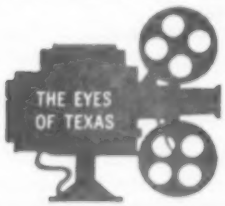
SINCE '51, SAC HAS REFUELED 15,000 MILITARY PLANES ...TREATS CREWMEN LIKE TEXAS OIL TYCOONS.
NEXT!
6,000,000 GALS. OF FUEL ANNUALLY GO INTO MILITARY AIRLINE AND BUSINESS PLANES ..TOPS IN PRIVATE FLYING

AC, Aeroquip Corp., Bendix Products Div., B. F. Goodrich, Canadian Pratt & Whitney, Delco-Remy, Eclipse-Pioneer Div. (Bendix), General Logistics, Glidden Co.,

Folks are mighty welcome at Southwest Airmotive . . . whether in civvies or in uniform . . for a cup of coffee . . . or a contract involving 6,000 engine overhauls. These cowhands had a special "Howdy" some years back for flyers from up Oregon-way.

Hamilton Standard, Lycoming, MacWhyte Cable Co., Miracle Power, Montrose Div. (Bendix), New York Air Brake, Pacific Div. (Bendix), Packard Electric,



In 25 years, SAC's physical lay-out has changed a lot, but the friendliness and the drama on its ramp, and in its shops, are pretty much the same. The reception posse for an F-80 pilot recently included 6 ecstatic Cub Scouts. For a pert blonde flyer, we brought out a real, live Texas Ranger, complete with the Lone Star flag.

Don't Miss SAC'S Silver Jubilee P&WA Engine Forum, Sept. 25th!

Pesco, Pioneer Central Div. (Bendix), Pratt & Whitney Aircraft, Red Bank Div. (Bendix), Scintilla Div. (Bendix), Utica Div. (Bendix), and Willard Batteries.

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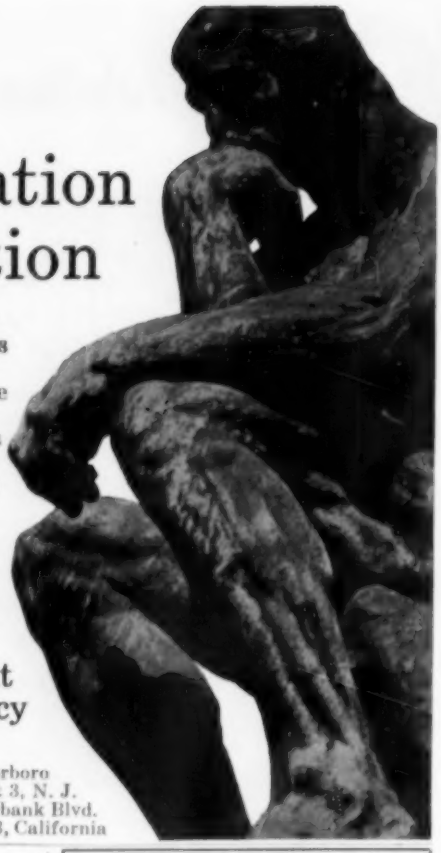

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U. S. N. ISSUE

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Miracle Suede Jacket, washable, drycleanable and stain resistant. Knit nylon collar and cuffs, nylon lining. Colors available in rust, tan, and charcoal, sizes 36 to 46, **$16.95.**

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MAILBOX

(Continued from page 8)

Hotel ("Overnight Stop," Jan. '57 FLYING) is close by, has a pool, ocean beach, dancing and lots of fun. Then on to Ft. Lauderdale for customs clearances and across to Nassau.

The crossing by Tri-Pacer was easy although we were on top most of the way. No automatic rough. The Superhomer worked well with a good radial indicated 130 miles out of Miami.

On our return we flew up to my old Kentucky home, Louisville, for a family visit then back to Teterboro with part of the trip at 12,000 ft.

The "Nassau Jaunt" story helped a great deal in our planning. We found the plane and the Superhomer adequate for this family vacation and are already planning our next one.

In the past we have visited places listed as interesting by FLYING and always enjoyed them.

MARTY BECK, Flight Test
Lockheed Air Service International
Ronkonkoma, N. Y.

FLYING'S 30TH ANNIVERSARY

30 years! And the sight of each new issue of FLYING brings the same thrill to these Private S.E.L. eyes as did the early logo known as "Popular Aviation!"

As a former contributor to your pages (cartoons, silhouettes and oxygen—remember?) I can't help feeling slightly proud of even a minor association with your successful publication. . . . Keep FLYING way out in front! Congratulations.

W. H. EVERETT
New York, N. Y.

PARACHUTING MATTERS

I am a reader of your most splendid magazine FLYING and have been since my arrival in So. Africa eight years ago. We have our own local flying club here of which I am a pilot member, and the local parachutist too! It is with regard to parachuting matters that I wish to ask for information from you or from any of your readers who have real first-hand dope and possibly first-hand experience in the matters I am inquiring about—a chart showing the "true" falling speeds of the human body at different altitudes, time taken to reach the terminal velocity after leaving the aircraft, effect of altitude on speed of falling body and effects of densities in tropics and other regions. If any of this information is in the form of a graph, or in written form so that I may compile a graph I shall be deeply indebted to them.

You see I am about to obtain my international certificate for parachute display jumping and high altitude free falls. I

(Continued on page 98)

what's Linda Lacking?

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AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AOPA NEWS

Aircraft Owners and Pilots Association is a service organization for the private pilot or aircraft owner. AOPA's full time staff is devoted to helping the individual pilot. Its aim is "To make flying more useful, less expensive, safer and more fun."

Headquarters address is Box 5960, Washington 14, D. C. Members also receive a special AOPA edition of FLYING, newsletters and confidential aviation data. Opinions expressed in this column are not necessarily those of FLYING Magazine.

AOPA LIFE INSURANCE

The pioneering AOPA Life Insurance Plan, which brought life insurance to private flyers at standard rates back in 1951, is taking a step expected to enable the Plan to give even more efficient service to AOPA members.

Effective August 1, 1958, all coverage under the AOPA Plan will be regular term insurance, making the coverage uniform for all members. When the Life Insurance Plan was started on May 1, 1951, coverage was given through a AOPA group policy. Beginning in 1954 issuance of policies under the group plan was discontinued, but members then covered were allowed to continue under the group plan if they so desired. However, many AOPA'ers took advantage of the offer to convert their group insurance to individual policies.

With the growth of the insurance in force under the new individual type policy, there was a major decline in the amount outstanding under the Group Plan. Due to this diminishing interest, it was no longer considered feasible to continue the old group plan, Floyd M. Drury, administrator of the AOPA Life Insurance Plan, recently wrote members still covered under the group arrangement.

After conferences between officials of the Minnesota Mutual Life Insurance Company underwriters of the AOPA Life Insurance Plan, and AOPA, a decision was reached to terminate the Group Insurance Plan effective August 1, 1958. Members holding such policies were given three electives for converting to the individual policy plan. New individual policies written since April 1, 1954, are in no way affected.

One advantage of converting to individual policies for some age groups is that the maximum coverage can be $20,000, where $5,000 was the top amount available under the group plan.

The AOPA Insurance Plan now has approximately $30,000,000 coverage on the lives of participating AOPA'ers. It has paid out approximately $1,000,000 in death benefits since the program was started. Although underwritten by Minnesota Mutual, the AOPA Life Insurance Plan is an AOPA National Headquarters operation. With offices in the national headquarters building, the AOPA Plan issues all policies to AOPA members and handles payment of death claims. It performs the functions of a home office of a life insurance company.

The AOPA Life Insurance Plan led the way in getting life insurance coverage for private flyers. When it was started in 1951, persons who flew airplanes were forced to go without insurance coverage on their lives, in most instances, or pay substantially higher premiums to get it. Now, most standard companies write life insurance on private pilots, but many of them have restrictions, such as the number of hours flown annually. The AOPA Life Insurance Plan allows unlimited flying.

INCOME TAXES AND AOPA

Using information supplied by AOPA National Headquarters on the time-saving advantages accruing to a company when a sales officer uses fast air transport for business purposes, an AOPA member was able to convince the Internal Revenue Service that he did not owe a fat income tax assessment made against him.

The member was allowed a car allowance by his company, but he chose to use his airplane rather than his car, paying any extra costs that might occur out of his own pocket.

"The Internal Revenue man with whom I talked about my returns seems to take the attitude that extra expenses incurred in flying are just my tough luck," he wrote AOPA. "I plan to try to file an amended return for three years and show my real expense, provided I can get the Internal Revenue people to consider the use of a plane as a legitimate business expense. So far they have insisted that I should use an automobile just like all the other representatives, and to heck with the extra expense . . .

"Do you have any figures which you think the Government would accept on the use of a Cessna 140 for the years mentioned, and do you have any suggestions on how to go about getting these people to accept the fact that airplanes, as I have used mine, is a legitimate expense?" he asked.

AOPA sent him some material considered useful for his negotiations, including a copy of an AOPA Airport Letter which discussed the use of small planes in business. (The member also had access to AOPA's Special Report, "Tax Savings for Pilots and Owners," written by AOPA General Counsel Alfred L. Wolf.)

"In Government field work there are people using privately owned aircraft and find it advantageous even when only given the same reimbursement given employees using their privately-owned automobiles," AOPA Airport Consultant C. C. Thompson wrote the member.

A few weeks later a second letter came from the AOPA'er.

"You will be interested in knowing that from the information you supplied, and from previous information I have received from AOPA in the past, which was in my files, I was able to settle my troubles with the Treasury Department . . . at no cost to me," he wrote. "In fact, when all the facts were explored, it turns out that the Government owes me $75. However, in order to expedite a settlement and get the matter out of my hair I agreed to settle on a basis that I owe the Government nothing, and they owe me nothing.

"At first, when I met the field man, he was most antagonistic about using an airplane for travel. According to the figures he had compiled, I owed him tax [for one of the three years] in the amount of $1,700. For this year alone, I could keep up my AOPA membership for 170 years!"

The AOPA Life Insurance Plan, which gives AOPA members life insurance at reasonable rates with minimum restrictions, is administered from this office in the AOPA National Headquarters building, Washington, D. C. Floyd M. Drury, administrator of the Plan, is seated at the left. Mrs. Elizabeth W. Phillips, assistant administrator and office manager, is at the rear desk on the right; Mrs. Clara Ysita, who completes the staff, is shown in the foreground.

this message for

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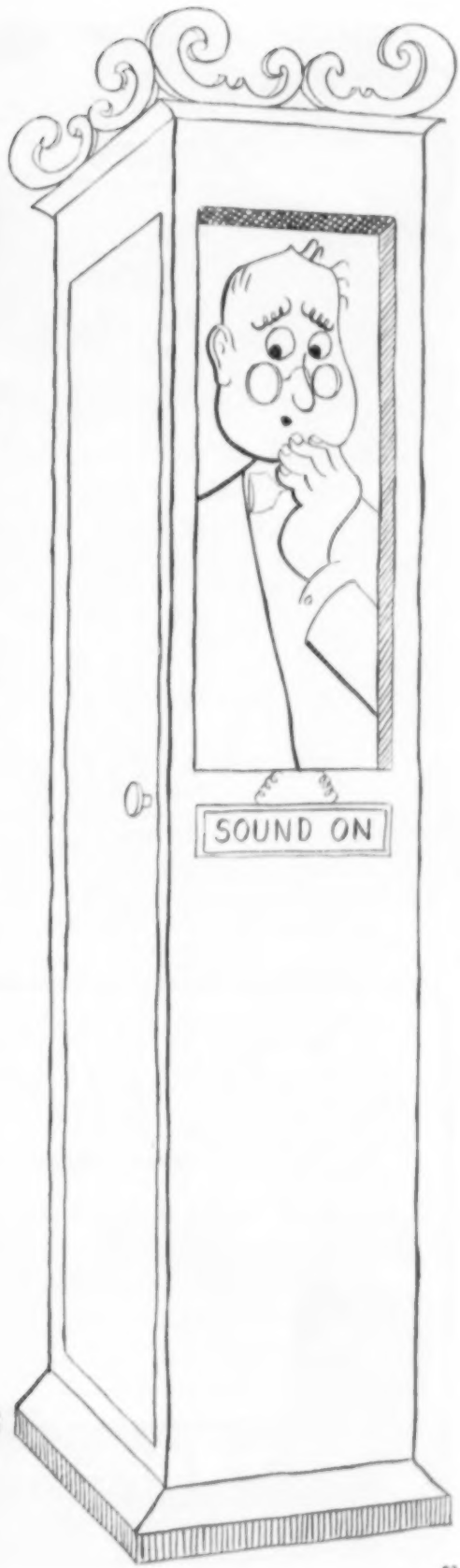

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To Fly or Not to Fly?

(Continued from page 57)

weather after dark; and further, the rare event of a forced landing, in daytime often no more than a big nuisance, at night may well constitute a serious emergency. You'll hear about the phenomenon of "vertigo" from your flight instructor. You can be a victim of vertigo in the cockpit when it's as dark outside as the interior of a black cat.

What about the expense angle? Let me immediately emphasize that overall cost of private flying can be surprisingly moderate. I am a 50 per cent partner-owner of a Piper Tri-Pacer, a well known cabin type four-passenger aircraft. Its nonstop range is about 450 miles, its speed about 125 mph. In round figures, I have a $2,000 investment in this Tri-Pacer, it being purchased secondhand. If it encounters no depreciating damage, somewhere down the line I can expect to realize 80 per cent of my investment on resale—anytime within the next three years or so. The operational cost per mile amounts to slightly less than five cents. This compares favorably with maintenance and operational expenses incident to automobile ownership.

The cost of plane insurance needs a word. Briefly, premiums will vary a great deal, depending on the type of plane, the extent of coverage desired, the purpose for which the aircraft is used, and the experience and qualifications of the pilot. "All-risk" protection for light aircraft is fairly expensive; the annual premium may amount to as much as seven and one-half per cent of the plane's replacement value. Adequate personal liability and property damage protection is a "must," it seems to me, and is quite reasonable in cost.

Prices of lightplanes, in general, cover a tremendously broad spectrum. Space limitations prohibit developing the pros and cons of the used versus the new airplane. Suffice to say that you can, if you like, spend a lot of money for a plane, up to about $22,000 with minimal equipment. Operational costs of such a ship can amount to 15 to 18 cents per mile. Routine inspections, maintenance, and repairs are higher for the more expensive planes. Affording a multi-engine type is beyond the scope of consideration in this article.

You'll ask about the cost of flight training, per se. Well, acquiring a private pilot license entails a minimum of 15 flight hours of dual instruction plus 25 hours' solo as a student pilot. The probable minimum cost, using equipment provided by flying schools, will be around $450. Two confreres have found it economical to learn in their own planes. Bear in mind, though, that the ownership of a private license, in itself, does not mean you're ready to fly solo anywhere in the country. Believe me, you've still a lot to learn about such things as meteorology, navigation, radio operation—"polished" piloting in general—which will accrue only from many more hours of experience, study and practice.

Okay, so far; but is it deductible? What

(Continued on page 96)

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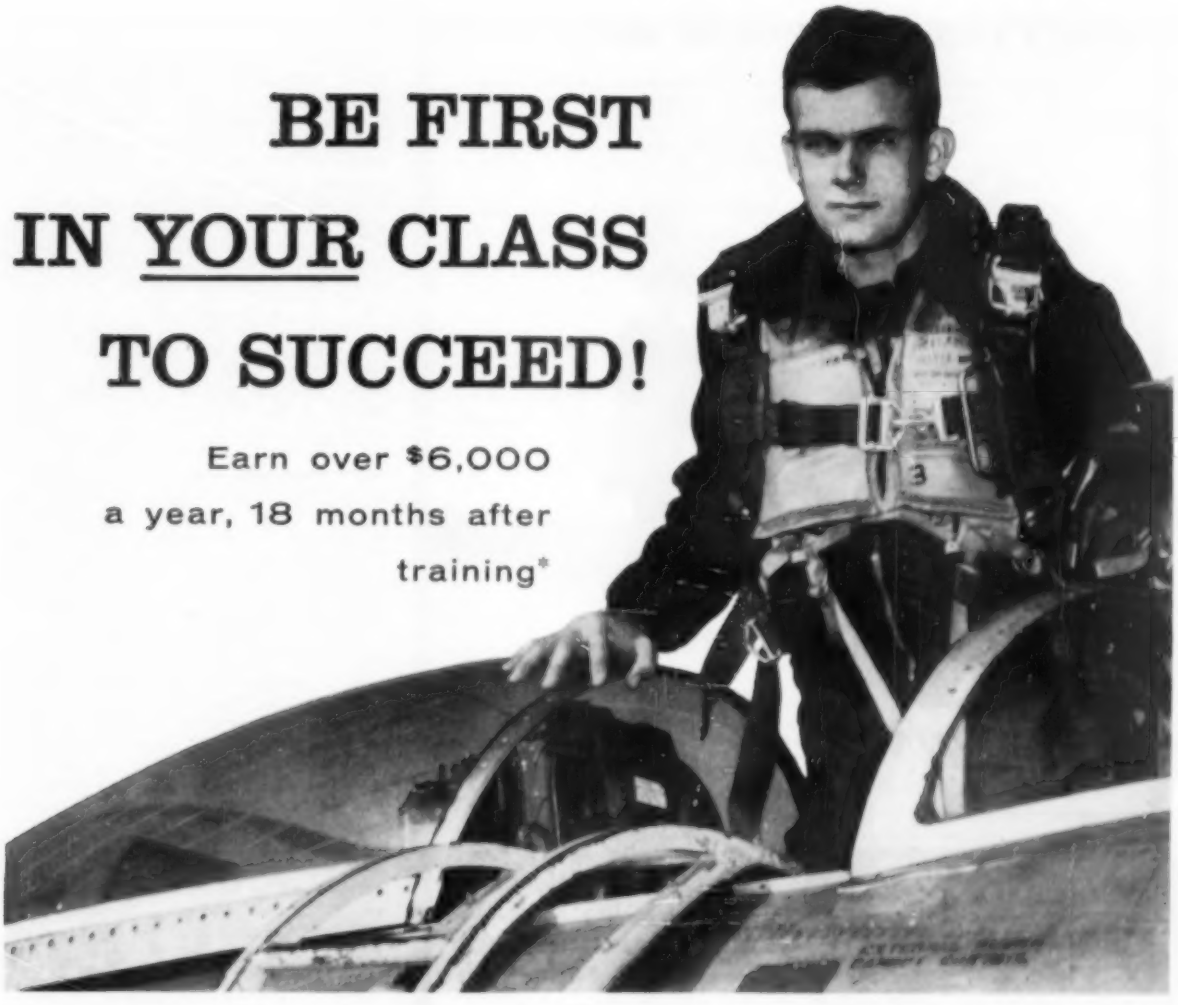

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(Continued from page 94)

about the Internal Revenue Service's attitude toward the doctor who claims a tax deduction in connection with his business use of the privately owned plane? Again from personal experience: About 65 per cent of my flight time is pursuant to bona fide business; i.e., travel to and from medical conventions, occasional consultation or lecture trips, and to follow up on a little farm improvement project. I meticulously document and record the purpose of each trip in a flight log book. Then, just to be ultra-conservative, I claim only an overall 50 per cent deduction at year's end. My returns have not yet been challenged by the Internal Revenue people. Furthermore, an official of the IRS has verbally assured me that a physician may expect the same tax considerations, with respect to airplane ownership, that any other person or corporation would receive—rumors to the contrary notwithstanding. Incidentally, one of the projects of the Flying Physicians Association is to secure a documented statement from the IRS to dispel income tax uncertainties relative to airplane expenses.

Note that I've had nothing to say about the vastly important consideration of safety. Leaving aside unfounded opinion and prejudice, just how safe is private flying? One worthwhile approach to a competent answer, of course, is statistical. I must be perfectly realistic; I can find no valid statistics which would establish the relative safety—or lack of it—inherent in travel by lightplane.

These data, however, are of interest; they were compiled by various insurance carriers and by the National Safety Council. In the four year period between 1949 and 1952, accident fatalities per hundred million miles traveled in "business aircraft" amounted to 0.49 persons; in domestic airliners—1.03 persons; in automobiles and taxis—2.85 persons; in passenger trains—0.28 persons; in buses 0.19 persons. As employed here, the term "business aircraft" seems to include the big, multi-engine planes usually operated by corporations, thus "loading" the statistics. Even so, one does find support for the belief that, from the standpoint of safety, travel by private plane probably compares favorably with that by private automobile.

But statistical considerations partly miss the point, as I see it, inasmuch as mechanical failure today, in modern, properly maintained aircraft, is a great rarity. At least eight of every ten accidents are directly attributable to the one factor of Pilot Error! I am persuaded that private flying can be made almost as safe as the private pilot is determined to make it, always realistically facing the limitations imposed by one's own experience, training and equipment.

Reinforcing this view is the fact that several leading life insurance companies now recognize that many private pilots of lightplanes deserve standard insurance rates, and are omitting the old routine "flight exclusion" clauses. For a rather modest extra annual premium of $3.75 to $5 per thousand, even the fledgling airman may now obtain full coverage while

accumulating his first 200 hours' flying time.

Most life insurance policies you own probably do contain the antedated aviation exclusion provisions. So, before your first flight, it's a good idea to ask your insurance agent to modernize your insurance program.

To my knowledge, at this writing there is no disability insurance available, without added premium, to afford the private pilot financial protection against disabling injuries sustained in a private plane accident. Recent informal correspondence with an official of a leading casualty underwriting concern leads me to hope for favorable changes in this situation soon.

How easy is learning to fly? What about physical requirements for the private pilot license? Would flying appeal to me? What does one do with a wife who objects?

The basic techniques of flying light airplanes are rather easily acquired. But to re-emphasize: becoming a polished and astute cross-country pilot demands a good deal of time and study—yet definitely lies well within the capabilities of most of us. The lawful physical prerequisites for private license applicants aren't as stringent as you might expect, and age, per se, isn't likely to be a barrier. You'll find active and capable pilots in their sixties. Specific requirements can be had from a flight school at the local airport or from any Regional Office of the CAA. If your wife, and/or others intimately concerned, are monolithically prejudiced against your flying, then I've no good suggestion for the resolution of a difficult problem. Best face it. Change their attitude reasonably or stay on the ground. One can always take up interior decorating or something. And whether one may get a lot of fun out of piloting, there's no way to tell except to try a lesson or so.

As for me, flying has been useful and helpful in the conduct of my practice. Anything that contributes to economy of time is profitable to most doctors, I suppose. Airports completely adequate to handle lightplane operations are plentiful, and are becoming more so. It's hard to find any sizeable community which isn't served by a nearby airfield. To me and to many other physicians there's nothing quite so thoroughly diverting as the technical process of piloting. Too, most of us enjoy and appreciate the strong bond of camaraderie that seems to exist amongst all airmen.

The whole point—if you're physically, financially, domestically, and temperamentally suited and inclined—come on up. It's a rare privilege. END

NOISY AIRPLANES

WHEN non-flying friends complain about airplanes that practically fly "right through their bedrooms", a little booklet by CAA, (price: 10 cents at the Government Printing Office) might be helpful. Entitled "Upstairs Neighbors", it covers the subject in non-technical terms.

The Impatient Pilot With The Missing Part

or

So Long On The Runway

Once upon a time there was a flyer in a hurry to get flying. But he couldn't. His aircraft lacked a part (they often do!)

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The flubub pin arrived the next day. But it wouldn't fit. He sent it back, in a huff and called another Parts Supplier.

"I need a flubub pin, he said plainly, accenting every syllable and hissing his consonants. He hung up firmly.

Same results. No fit (unless you count the flyer's).

Then he called Airwork. But—before he could hang up, *somebody started asking questions.*

So—the next day he received the *right* flubub pin.

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MAILBOX

(Continued from page 90)

am a veteran paratrooper of the British Parachute Brigade and took up jumping again to promote parachuting in the Colony here. In due course I will open a club and begin training new jumpers with the aid of the flying club.

Not very long ago a movie short shown at the local cinema was all about the parachute team of the U. S. Navy. This I was allowed to borrow and show to our club. Also there was another film dedicated to your American test jumpers and concerned with the recent high altitude balloon records made by the U. S. Air Force. Well after seeing these two films and reading much about the parachute test teams in the USA I decided to write you for further information. Although I have over 200 jumps to my credit I have never gone into the more complex side of high altitude free falls and what I learned in the Army over 15 years ago is a "wee bit" out of date now.

JOHN H. HODGSON
P. O. Box 1192
Bulawayo, Southern Rhodesia

UP FOR NOMINATION

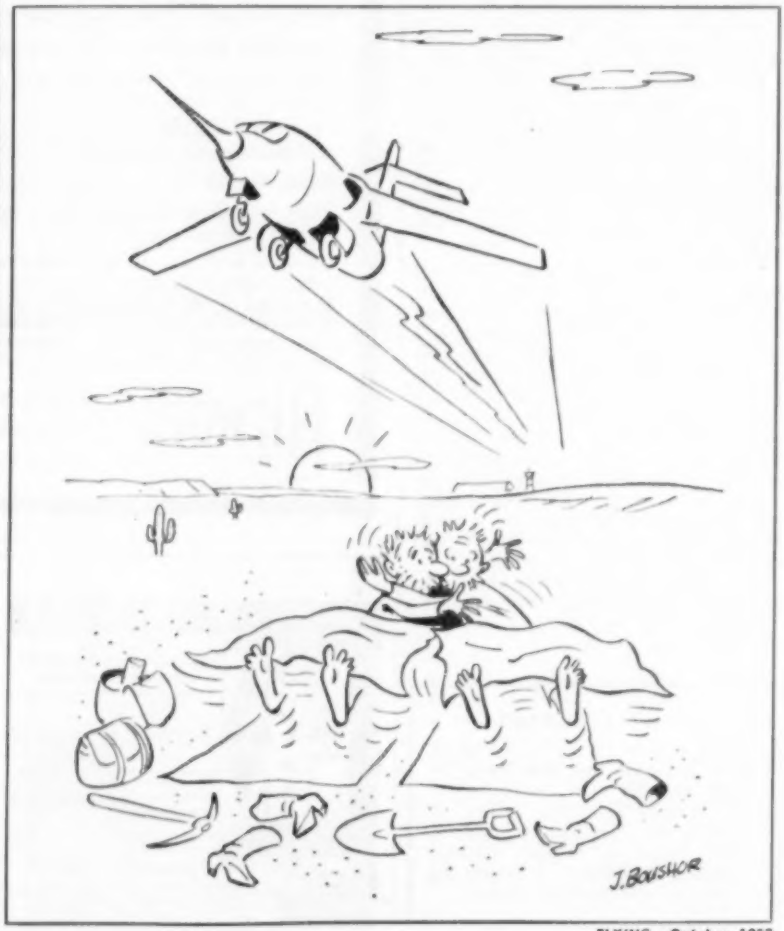
As is my custom, I was reading my copy of FLYING from cover to cover. I noticed in "Mailbox" that the Rev. Charles Hinson has the same problem as I in trying to get a plane. I have been trying to save for a down payment, the type always wanted by the finance companies I have contacted . . . and never seem to get the amount. I always use it either for flying or for other needs that constantly come up.

My interest in aviation is threefold. I find I can use it in my work, I love flying and most important right now . . . we have a high school here (always have been associated with education) and being a pilot helps me also to get the students interested in aviation.

I wish the Rev. Hinson success in his endeavor to find a long-range financing program, and if they want to take a chance on another financially poor clergyman, I would like to nominate myself.

FR. FRANZ SCHUBERT
Church of St. Mary, Star of the Sea.
Astoria, Ore.

● *SO FAR* FLYING *has had only one nibble on the subject of long-range financing of used aircraft, but we are ever optimistic. We hope the Rev. Hinson has had better luck. ED.*



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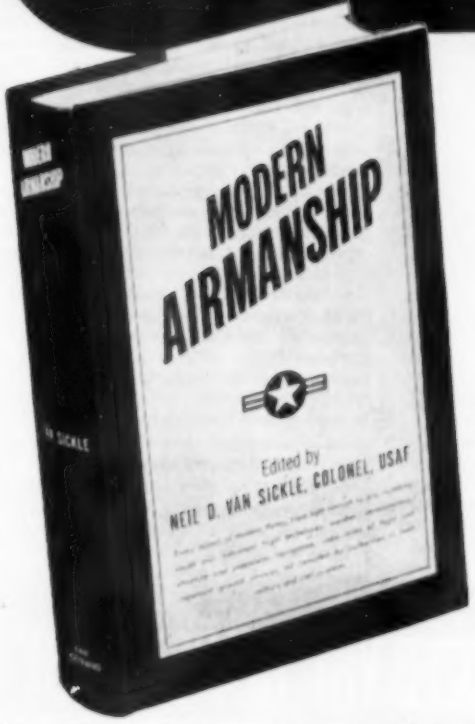

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Check Pilot Report on DARE

(Continued from page 61)

were right over the Lewisburg intersection of the Dayton and Appleton omnis. Kindred precision navigation was checked on several other omni intersections. Results were equally accurate.

As a final check on the equipment, we decided to try a simulated ILS at Dayton. We called the tower and were cleared to fly the back course, crossing the field at minimum of 2,500 feet. On this track I was especially curious to observe the inner and outer marker beacon action. DARE's marker beacon receiver features a transistor power supply, i.e., two transistors are used in a push-pull oscillator circuit, thus eliminating the weight and need for a vibrator or dynamotor unit. Use of such a power source also eliminates need for a fuse or circuit breaker in the high voltage circuit. If a "short" occurs somewhere in the set, the power supply transistors are pulled out of oscillation and hence no voltage—no damage. Also two additional transistors are used in place of relays in the marker beacon receiver; thus the unit is unusual in that it has no moving parts.

Passing over the marker stations, the inner and outer marker signals were precise and positive. Positive action is appreciated by pilots when making an actual low approach.

By this time we were in position to make the procedure turns and track in on the localizer and glide slope. Elliott demonstrated the ILS and, being a former airline pilot, made it look twice as easy with the DARE equipment. Except for several small corrections to offset thermal action, the localizer and glide slope lined us up exactly and placed us in good position to make the landing.

What type of organization is DARE? What is the attitude of their engineering staff? What about repair and replacement policy? I requested a tour of the company's facilities, and they turned me loose to talk to anyone I chose. At the Troy, Ohio Plant 1, they have a modern one-story building of 17,000 square feet which houses the engineering and production facilities. I was impressed with the background experience in aircraft radio specialization. Their thesis is to increase performance of navigation and communication equipment while reducing weight and power requirement. The serviceman is kept in mind when designs are considered. All designs are along the "modular" construction pattern—that is, really subassembly with the plug-in principle.

For example, if the IF (intermediate frequency) strip of the marker beacon receiver needs repair, the unit can be pulled out of the circuit and replaced by a new one. Meanwhile the serviceman trouble-shoots the inoperative unit.

Manufacturing-wise, production flow follows definite supervised lines with quality inspection made at various stages. Final inspection is made on all communication equipment only after the item has been subjected to two hours in a cold box at 20 degrees F. below zero, followed by two hours in an oven at 180 degrees F. This sequence is then repeated, after which comes a test on the "shake table" for two hours. Only after this, is the item checked for mechanical and electrical performance.

At Dayton Airport I visited Plant 2. Here DARE utilizes 36,700 square feet for commercial sales, service, and military equipment repair. I met the company's 39-year-old president, Mr. Louis Pitinsky, who prefers to stay at the airport site for contact with customers, rather than at the executive offices at the manufacturing plant. Prior to 1951, Mr. Pitinsky, had been a field service engineer for Lear. Then he and his cousin Al Sherwat went into the business of custom radio installations in business aircraft.

Eventually the partners found it necessary to do light manufacturing for a complete job for their clients, and as their staff grew, an engineering section was organized. In 1951 they reorganized as the Dayton Aviation Radio and Equipment Corporation. Growing steadily in production, DARE employs some 150 persons presently. This is augmented by a sales and service organization of 67 distributors, complete with service shops, located across the nation. END

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Aircraft Brokerage

(Continued from page 46)

half of their original cost, including the equipment installed, for a great many years. The above figures bear this out. Of course, this would not be true in the case of a ship made obsolete by the production of a greatly improved model. These facts should be considered when buying a used aircraft. Airplanes now in considerable demand, and scarce on the open market are: Aero Commander 560A's, Cessna 140A's (all metal), Cessna 170's (all models), DC-3's, Goose and Mallard amphibians, late Stinsons, and Piper Super Cubs. Most other popular types are readily available excepting models which have only recently been produced.

Although we deal in all popular civil aircraft worth $3,000 or more, we do not list lower priced airplanes or government surplus ships. In working with a purchaser, we do not try to "sell." We simply find him the right aircraft, at a sensible price. Therefore, our listings are most important. The best often come directly from owners who have not advertised their ships for sale. We obtain these offerings by mailing over 65,000 listing cards, and several thousand personal letters throughout the country, annually. Through this process we have hundreds of airplanes to offer at all times, many of which are not locatable otherwise. Our success is our ability to offer the buyer a particularly good selection.

Each listing is described in considerable detail on its own form, with important performance figures stated, and a photograph of a standard model attached, for the convenience of clients. To select the best aircraft to offer a client, we must know his preference in makes and models, the extra equipment desired, and, most important, his price range. This method precludes the use of a mailing list. We must handle each inquiry individually. Because of the rapid turnover in best listings, and the fact that others are received daily, buyers simplify matters by requesting offerings when about ready to purchase. Of course, owning no airplanes ourselves, and with all types available, we are only interested in guiding a client to the most desirable airplanes at the lowest costs. Our charges run the standard commission of ten per cent on the first $5,000 of the price, plus seven per cent on the balance. This is paid by the seller. There is no charge for brokerage service to purchasers.

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(Continued on page 102)

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(Continued from page 101)

in airplanes, or represent any particular manufacturer. His duties are to bring buyers and sellers together, arrange inspections, carry on negotiations, check titles and liens, prepare bills of sale, and work for the protection of both principals involved.

We make a specialty of exporting, handling all details for the purchaser in another country, and paying all bills with funds provided in advance. We inspect and purchase the most desirable ship for him; have it ferried to him if it can make the trip safely, or ferried to a cargo airline, or a crater who later delivers it shipside. We obtain his executed bill of sale from the owner, the export permit from Washington, and the manuals he needs. We arrange for changes in aircraft radio to meet the requirements of any specific country. We often have the purchaser's aircraft painted, reupholstered, engine changed and other work done. We ship any spare parts desired with the airplane. It is obvious that these details could not be handled easily by a foreign purchaser, himself.

It is rare that we export on a letter of credit. This raises the buyer's costs, involves considerable red tape, causes delay in shipment, and, most important, usually lets a bargain slip away. We are grateful to have the confidence of so many, who place large sums with us to purchase their airplanes and attend to all export details. Our work is thus simplified, and they almost invariably obtain a better airplane on this basis. Owners of bargains, readily saleable, will not wait to be paid for their ships while we comply with the many details and requirements of most letters of credit.

Two government agencies could expedite, simplify, and possibly help increase aircraft exporting. The State Department, by furnishing export permits in a shorter period. We have to hold shipments two weeks, and often much longer for export permits from Washington. The CAA, which takes two weeks, and sometimes a month, to furnish a simple letter stating that they have cancelled U. S. registry of an exported airplane. This is often needed by a buyer before he can register and fly his ship in his country. We feel that a printed form could be used, and merely signed by the CAA after insertion of the "N" registration number of the aircraft.

Since July 15, 1957, owners have listed over 15,000 airplanes for sale with us of practically every type. We have done business in 45 of the 48 states, and in 15 foreign countries. This has kept us in close contact with buyers, sellers, the aircraft themselves, civil aviation developments, and the U. S. aircraft market here and abroad.

This year is our tenth anniversary. As we review the past and contemplate the future it seems that while civil aviation may never reach the point of an airplane in every garage, it still has progressed and rests now on a firm foundation.

From here all signs point that the best is still to come. END

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I Learned About Flying From That!

(Continued from page 62)

air because I had the turn stopped though my heading was 90 degrees to the left of the original heading. But at this point I had let the plane have all the nose-down attitude I could spare and very little air remained between me and the ground. Only one course of action remained; to horse back on the yoke and take a chance that the Cessna would pull out, if not, it would at least hit flat instead of barreling-in nose first.

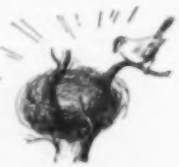
Pulling back on the wheel, I felt the ship trying to recover. It did achieve a near-level attitude; but then we hit. Left gear first, then the left wing and the nose. It was sheer luck that the airplane did not go over on its back but ground-looped instead and slid tail first. When it stopped, the only intact portions were the right landing gear and the right wing. The rest was a total wash-out. Gasoline was running out of the broken lines from the two fuel tanks. I got out of there fast. Four fire trucks and an ambulance came charging across the field, but there was no need for them. The immediate requirement was a crash truck to haul away the remains of the gallant and friendly little Cessna.

When I crawled out of the wreckage, I had no idea what caused the airplane to behave in such an unnatural manner. I knew I had ample airspeed and that the plane had not fallen out from under me but rather was pushed up with considerable force. However, from several experienced pilots who witnessed the accident, I quickly learned that the extreme turbulence from the wake of the Connie had rolled me while I was at an altitude from which recovery was impossible.

From this incident I learned to always give any plane, and particularly large multi-engine ones, plenty of "tail room." Weather conditions in Memphis on this memorable July day were perfect for this type of accident—temperature 101 degrees, humidity 89 per cent and wind practically zero. Add to this situation a very inexperienced pilot, anxious to expedite his take-off to clear a busy traffic pattern which included jets, and you have the makings of a catastrophe. END

WISE BIRD

Bird building a nest is not news. True, but a certain bird in Ft. Wayne, Ind., has built one to challenge the architects. Constructed of tiny strands of stainless steel wire supplied to Ft. Wayne Metals, Inc. by Allegheny Ludlum Steel to manufacture aircraft filters, and scrounged strand by strand, this wise bird's nest is ultra modern, unusually strong, will not corrode and is feathersoft.

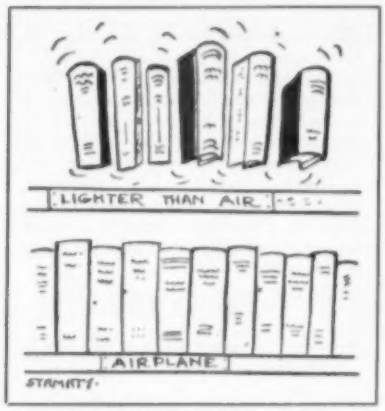


Have You Read?

(Continued from page 22)

well as business management.

The listings bracket highly technical terms and phases to slang where the latter has come into general usage. Various grammatical differentiations of terms is noted. Etymologies and pronunciations are dealt with where required. Terms and definitions are cross referenced while obsolete terms, place names, (bases, etc.) and individual airpower pioneers are included and defined for historical value. This dictionary should be on the reference shelf of every office or individual connected with the profession of the air.



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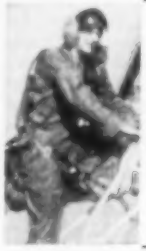

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Why Cessna Is Building the Model 620

(Continued from page 37)

ance came pressurization, a necessity for topping severe thunderstorm and frontal activity without oxygen masks. Adequate range with ample holding time during IFR conditions fell into the pattern automatically.

In the comfort category, practically all executives specified cabin roominess and comfort while their pilots indicated efficiency and comfort as a necessity in the flight deck. Executives asked for a variety of cabin furniture, versatile in arrangement. They said small conveniences for both flight and ground comfort should not be overlooked.

Speed was a point they debated. Minimum speed desired was 180 mph, while maximum speed indicated was 500 mph. A majority said a 250 mph cruise would be acceptable.

Economy was an important point. The survey indicated that the selling price of the airplane should be in line with the present corporate fleet. Operating costs and maintenance as well as availability of servicing facilities and parts were frequently mentioned. Economy was stressed repeatedly during the interviews and as a result, had an important bearing on the future production plans of the airplane.

From the standpoint of general utility, both executives and pilots desired an airplane with short field performance to permit accessibility to a variety of airports. Finally, they said the airplane should be a self-contained unit that would not be dependent upon ground handling equipment when operating in and out of small airports.

These were the points outlined by the potential customer. But what about the manufacturer? Certainly, we must meet the customer's requirements, but our analysis had to go a step further. The airplane must sell in sufficient numbers to justify its production. It must be designed to fit a general pattern of the customer's specific needs. It would have to be an airplane with overall capabilities and would have to meet common characteristics.

To complete the picture, we contracted with an independent market research firm to survey the market. Too much optimism has put many pioneers out of business. The Wright Brothers pioneered and so did many others to whom we owe a great deal. We must admit, however, the pioneer has not always been successful in producing large quantities of operationally useful aircraft. Optimism and theory must be moderated by realism, judgment and fact.

The market research firm contacted scores of executives representing all types of corporate users. Both executives and pilots were confidentially interviewed with an unbiased approach. The results substantiated our conclusions and the questions again received the same basic answers with but few exceptions.

By combing the customers' requirements and our own, we began to see the characteristics of the airplane they desired. From the characteristics came the

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design which is represented in our flying prototype today.

As we are readying the 620 for production early next year, we hear comments about developing an airplane with piston engines for the corporate market. The utility of the piston engine is proved. Experience speaks for itself. The piston engine is reliable, economical, has utility, can be serviced anywhere, and offers an acceptable speed.

Turbo-prop and turbo-jet engines of the proper size to provide higher cruising speeds are not yet available. The cost of adding these engines to the 620, if they were available today, would probably price the airplane right out of the market for which it was designed.

It is encouraging to see some of the large airframe manufacturers eyeing the business market. This indicates something we have worked 30 years in assisting to create—recognition of the businessman's transportation needs. Through increased competition, Cessna and its worldwide dealer organization, now reaching the 300 mark in retail sales outlets, will be able to serve the business user with greater emphasis and efficiency.

Our end product, whether it be the 620 or any other aircraft in our line, must be a vehicle that meets the definition of a good airplane—one that contributes more than it costs—to both the user and the manufacturer. We believe the 620 is such a selection. END

CESSNA 620 SPECIFICATIONS

Span	55 ft.
Length	41 ft. 7 in.
Height	16 ft. 5 in.
Take-off, gross weight	15,000 lbs.
Landing, gross weight	14,825 lbs.
Empty weight (est.)	10,000 lbs.
Fuel capacity	535 gals.
Baggage with a max. capacity of 500 lbs.	50 cu. ft.
Eng. (4) Cont. GSO 526-A	350 hp ea.
4-engine operating ceiling	25,000 ft.
3-engine operating ceiling	20,000 ft.
Propellers—Hartzell 93-in. dia., three-bladed, constant speed, full feathering (reversible pitch optional)	
Max. speed @ 15,000 ft.	282 mph
Max. cruising speed, 2,600 rpm, at 12,500 ft.	260 mph
Max. rate of climb, sea level, gross weight 15,000 lbs.	1,150 fpm
Max. rate of climb, sea level, gross weight 13,000 lbs.	1,520 fpm
Max. range @ 15,000 ft., utilizing optimum power	1,720 miles
Wing loading	44.1 lbs./sq. ft.

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Sept. 19-20—1957 Aviation Operations Symposium combined with the Eighth Annual Pratt & Whitney Aircraft-Airwork Corp. Engine Operation and Maintenance Forum. To be held at Airwork Corp., Millville Airport, Millville, N. J.

Sept. 23, 29—Aviation Week and Private Aircraft Exhibit sponsored by the San Francisco Junior Chamber of Commerce. The week's activities will be climaxed by an Open House at the San Francisco International Airport on Saturday, Sept. 28 and Sunday, Sept. 29. The Jaycee is interested in displaying many makes and models of executive and private aircraft. Inquiries regarding airplane and airplane products display should be directed to Frank A. Clarvoe, Jr., Aviation Committee, S. F., Jr. Ch. of Commerce, 333 Pine St., San Francisco, 4, Calif.

Sept. 27—Eighth Annual Airwork Corporation—Pratt & Whitney Aircraft Forum at Airwork Corporation, Miami Villas, Miami, Fla.

Oct. 2-4—National Airports Conference at Univ. of Oklahoma, Norman, Oklahoma.

Oct. 8—Iowa State Mechanical corn picking contest to be held on the Municipal Airport grounds, Washington, Iowa, starting at 0900.

Oct. 12-19—Ninth Annual All-Texas Air-Tour. Three thousand miles of pleasure flying with 36 stops of good old Texas Hospitality. Write: Texas Air Tours, 307 Walton Bldg., Austin, Tex.

Oct. 20-22—Fourth annual Western Forum of American Helicopter Society, Statler Hotel, St. Louis, Mo. Write: Forum Ch., Marvin D. Parks, McDonnell Aircraft Corp., Lambert-St. Louis Mun. Airport, P. O. Box 516, St. Louis 3, Mo.

Nov.—Early in the month. Dallas Air Fair at Addison Airport. Details later.

Nov. 11-13—Third IRE Instrumentation Conference sponsored by Professional Group on Instrumentation and Atlanta Section IRE at Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 13-15—Eighteenth Annual Convention of National Aviation Trades Association at Hotel Adolphus, Dallas, Tex. will include meetings of National Air Taxi Conference, the Maintenance Council and Aerial Applicators. Convention Chairman is J. O. "Toots" Womack of Mustang Aviation, Dallas.

Nov. 20-22—Aviation Distributors and Manufacturers Ass'n. Thirtieth Meeting at Sheraton-Cadillac Hotel, Detroit, Mich.

Dec. 7-9—Air Cruise to the Grand Bahama Club, West End, Grand Bahama Island, B.W.I. sponsored by the Florida Aero Club, Inc. Six meals, two nights' lodging, cocktail party, transportation and preparation of all necessary government papers for $35 per person, double occupancy. Write Harry B. Collins, Air Cruise Director, 375 N.E. 154th St., North Miami, Fla.

March 14-21, 1958—Fourth Annual Miami-Cuba Air Cruise sponsored by Florida Aero Club which will also include a flight to Haiti and Jamaica. Write Harry B. Collins, Air Cruise Director, 375 N.E. 154th St., North Miami, Fla.

Calendar items must be received at FLYING's editorial offices, 366 Madison Ave., New York 77, N. Y., three months prior to the event.

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Hangar Flying

(Continued from page 14)

be desired. Just then a plane landed on the "lake" runway with room to spare, so I followed suit. As I taxied to the gas pumps, the light suddenly dawned. If I held the chart in the proper way (upside down when flying south) I would have known that my first check point after Apopka was wrong.

P.S. I finally got my license.

LOIS AMOS

Cocoa Beach, Fla.

STAND BY FOR FIRE

A FIRE GUARD seems proper and in place for the military or airlines, but it had never occurred to me that a lineman standing by with an extinguisher might be necessary when starting a lightplane.

It was a cool Texas October morning when I found it could be mighty handy. The Cessna 190 took an extra amount of priming as I hurried to start a short business trip. When the engine failed to catch, I noticed a bystander pointing to the cowling. Guessing the worst, I continued to turn the propeller over with the starter in a frantic attempt to get the engine started and thereby "blow out" the fire. Still no luck, so I grabbed the ship's fire extinguisher and jumped out just in time to meet a lineman running up with a CO_2 bottle.

One quick shot took care of the fire with no damage to the aircraft. Since this incident, I have added one more item to my check list. . . . Fire Guard, when at all possible.

GUY DAVIS

Bryan, Tex.

TATTERED WING TIP

I HAD TO KEEP my former Cessna 120 tied down behind the hangar for a couple of months. To protect the wing fabric from deteriorating I made canvas covers. One day a bad storm hit the area, but by late afternoon the weather turned perfect, so my friend and I decided to fly for an hour. Preflight inspection was very thorough after the storm, and as everything seemed okay, we taxied out and took off. Relaxed at 5,000 feet, we were enjoying the scenery when, all of a sudden, an unusual updraft—that's what we thought—lifted the left wing. The right wing became heavier and heavier, requiring full aileron action to level out the ship. I

(Continued on page 110)

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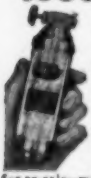

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Hangar Flying

(Continued from page 109)

made a left turn and the Cessna responded normally, but when I tried turning to the right it almost spun. There was only one thing to do, we headed for home at low throttle. Once during the return flight I poured the coal to her and down went the wing. I did not try it again. Eventually we got down safely and taxied up to the hangar. There we got the jolt of our lives. Some ten square feet of fabric was missing toward the end of the right wing, with exposed ribs staring us in the face. We consulted the boys in-the-know around the hangar and some were sure that the heat under the wing covers "burned" the fabric, others claimed that the canvas flapping against the fabric during the storm weakened the fibres. I never did satisfy myself as to the cause.

T. C. HELVEY

Oneonta, N. Y.

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SEVERAL OF US here in Fairbanks, Alaska, have been trying out oversize balloon tires on our ships. I have a set mounted on my Super Cub and find them superior to the tandem gear. The 25-inch tires roll easily over deep washes

and large rocks. Pulling valve stems while turning is eliminated and control on the ground is excellent. There is no noticeable difference in air speed at a given rpm, but possibly a slight increase in manifold pressure may be necessary to maintain that rpm. The tires are Goodyear 4 x 11 x 25 and, apparently of an old design. I managed to locate a new pair without much trouble, although some of the local pilots were not so lucky. Perhaps I should mention that the Piper hub does not fit the four-inch opening in the tire until a rubber shim is cemented around the hub to increase its diameter by one quarter inch. This is desirable from another standpoint too, there seems to be no tendency for the tire to turn on the hub even under hard application of brakes. The rubber to rubber contact holds very well.

The above photograph was taken at the base of the Alaska range last fall, on a sheep hunting trip. The "landing strip" is typical overgrown glacier moraine where 300 feet of rough ground constitutes a good field.

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AVIATION Jobs—Names And Addresses of Companies To Contact. $1.00. Fitzgerald, (Chicago division). Dept. A-13, 815 Countryside Drive, Wheaton, Illinois.

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AVIATION Photo & Book Collectors! New lists of photos & books now available. Including Pioneer, WWI & II. Exclusive photos of Historical planes, latest Jets. Send 25¢ for sample photo & book lists. Airbooks, P.O. Box 958, New Rochelle, N. Y.

NOTICE! Will trade insurance stock for small aircraft. Moser, 1805 Walnut, Odessa, Texas.

HOMEBUILT Designer-Builder Handbook. Formulas; Layout; Airfoils; Engines. $1.00. San Urshan, Box 4332 N. P. Sta., San Diego 4, Calif.

FOR lease, Airport adequate room 20 planes and A. & E. work. Hangar rent will pay lease. Write Jensen Airport, 14th & Pacific, Coffeyville, Kans.

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announcement from Washington and Ottawa of plans to carry out a partial merger, under the control of USAF Gen. Earl Partridge. Air Marshall C. R. Slemon, Canadian chief of air staff is appointed deputy commander under Partridge and will move to Colorado Springs.

FOR MAKING AVAILABLE to the U. S. Air University (Maxwell AFB, Ga.) his valuable aviation library and museum, Count Gianni Caproni di Taliedo (left) was presented with an Air University medallion and scroll on behalf of the USAF. Italy's aviation pioneer, Count Caproni received the honors at his home in Rome. Col. Richard A. Knoblock, U.S. Air Attache in Rome, officially thanked the pioneer for his generosity.

SEVEN NEW VHF Omniranges are being established in New York state by CAA. Locations are: Geneseo, Ithaca, Jamestown, Riverhead (Long Island), Watkins Glen and Utica.

VAN DUSEN Aircraft Supplies has established a new division under the direction of A. G. Bari at Miami Springs, Fla., at Northwest 29th Street off Lejeune Ave., and adjacent to Miami International Airport. The new facility brings to seven the number of Van Dusen locations. Others are at Teterboro, N. J., Minneapolis, Chicago, Richmond and Alexandria, Va.

TWO TEXAS STUDENT PILOTS, Sally Rendigs (left) and Bertie Corry, daughter of Bury Corry (right) general manager of the Airport Flying School at Highland

Park Airport, Dallas, are introduced to a new Aeronca Champion Tri-Traveler. The school has taken delivery of three new Champions and moved into new facilities to take care of expanding business.

VICTOR AIRWAY 210 from Los Angeles, Calif. to Pueblo, Colo. via the Grand Canyon became available to pilots July last. The airway, which ties in with Victor 10 to New York at Pueblo, is based on VHF Omni ranges located at Los Angeles, Daggett, Calif.; Farmington, N. Mex. and terminating at Pueblo. On Aug. 1 that portion of Victor 210 between Los Angeles and Farmington became part of transcontinental Victor 1512 from L.A. to N.Y. but Victor 210 retains its identity.

EXTRA POWERED, with a 90 hp engine instead of the usual 65 hp, the familiar Piper PA-11 Cub has been approved as a floatplane with Edo Model 1400 floats. The extra power nearly doubles the rate of climb of the 65 hp Cub and because of its short take-off run the ship is said to be proving popular for use on small lakes. Its 17½ gallon gas capacity gives the plane a range of over 300 miles.

UNDER THE TITLE of "Captain Bob Perry and the Civil Air Patrol," citizens of Connecticut are being beamed a weekly 15-minute program on aviation in general and CAP activities in particular, through the courtesy of TV station WHNC, New

Haven. Originated by CAP Captain Perry, a commercial photographer of New London, the successful program includes film strips on state CAP activities, discussion of aviation subjects and short lessons in navigation, meteorology and the like. Capt. Perry is pictured here in the New Haven studio.

A SPECIAL SEAL TOOL KIT for replacing seals in the Simplex Aerial Spraying Pump has been announced by the pump manufacturers, who report that any mechanic can change a seal in a matter of minutes with the aid of this kit. Kit is available at $5.75 from Columbia Exporters, 732 S.E. 11th Ave., Portland 14, Ore.

OF INTEREST to those who wish to organize a flying club and to those already engaged in club flying is a new handbook prepared by the National Flying Club, Box 94, West Point, N.Y. Price: $1. Not to be confused with the National Flying Clubs Association, the NFC is training its sights among other things on the possibility of a truly national flying club with reciprocal membership agreements between local clubs and/or national ownership of aircraft, its handbook covers list of current flying clubs, light aircraft manufacturers, aviation publications and a complete reprint of CAA's out-of-print booklet on organization and management of a flying club.

PRINTED IN U.S.A.

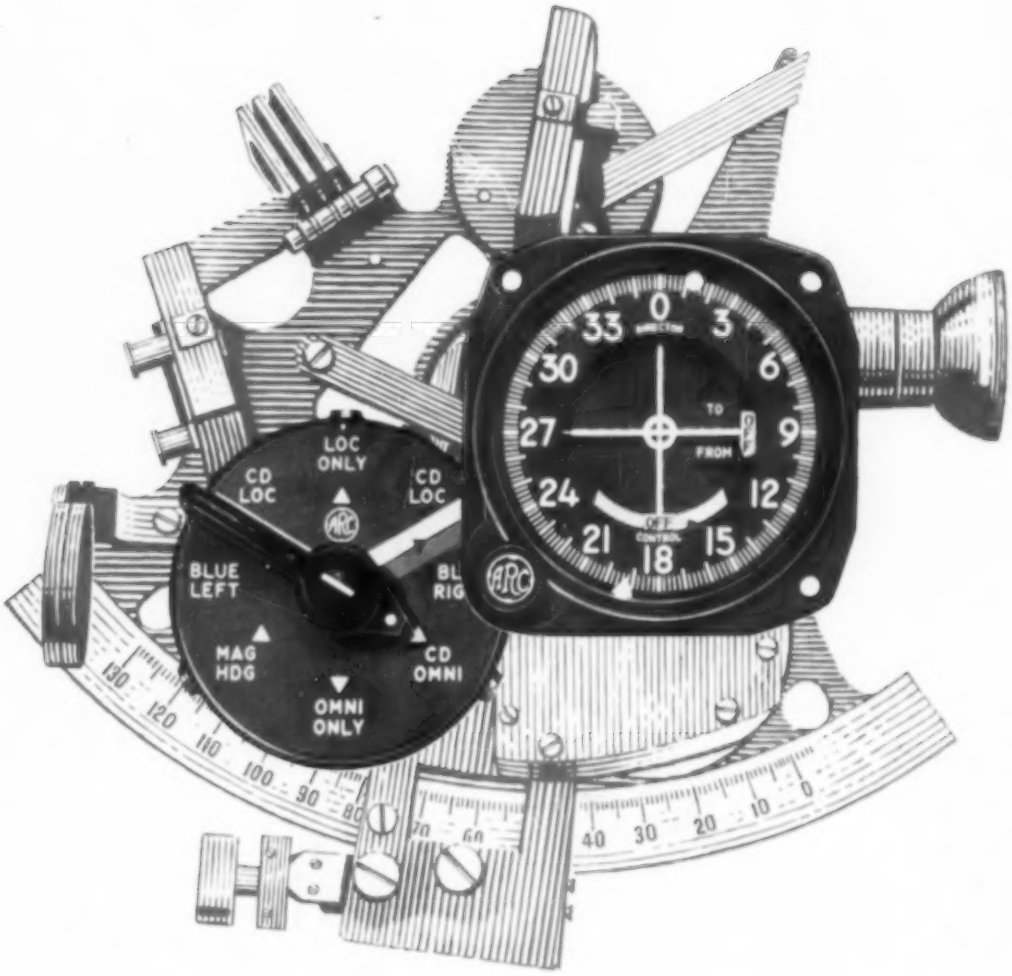
SIMULTANEOUS with the activation of a squadron of F-102's at McGuire AFB, Trenton, N.J., one of the major bases in the Continental Air Defense system, a group of civic leaders from the area adjacent to the base was airlifted to Headquarters, CONAD at Colorado Springs for

orientation and briefing at the Combat Operation Center there. The group then continued on to San Diego, Calif., for a tour of the F-102 manufacturing facilities at the Convair plant. While at Colorado Springs some of the party paused to study a model of the Convair Delta Dagger—the F-102.

AVAILABLE AT NO COST is a new multi-colored AC sparkplug short-reach specification chart, designed as an easy-to-use reference piece. Covering both massive and fine wire electrode, the chart provides the AC type and gap specified according to air frame and engine model for aircraft employing short-reach plugs. It is distributed through dealers or AC headquarters, Flint, Mich.

PESCO PRODUCTS, a division of Borg-Warner has established a nationwide network of seven leading aviation distributors to provide better service to corporate and private plane owners and commercial airlines. Pesco aircraft accessories include air, fuel and hydraulic components. New distributors include Airwork Corp., Millville, N.J., and branches; W. J. McConnell, Boston and Hartford; General Aviation Supply, Detroit; Minnesota Airmotive, Minneapolis; Pacific Airmotive, Burbank, Calif. and branches; Southwest Airmotive, Dallas and Standard Equipment, Mineola, N.Y.

JUST WHAT THE EXECUTIVE AIRPLANE has been missing all along is at last available—the whitewall tire. General Tire and Rubber has filled the gap—beginning with a nose wheel tire, white on both sides, for the Fairchild F-27 twin prop-jetliner. President William O'Neil of General Tire gives you a preview.



NEW LOOK in navigation aids

ARC's Course Director CD-1, Teamed with ARC's Dual VOR/ Localizer Receivers 15-D, Shares the Work with the Pilot

More and more pilots rely on the ARC CD-1 Course Director to determine the exact headings required to intercept and fly a desired VOR radial or runway localizer. This electronic "co-pilot" helps them fly with pinpoint precision, greater ease and increased safety, and in four simple steps.

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